EA SPORTS™ NASCAR® Racing

Standard & Deluxe Cabinets
Operation & Service Manual

040-0146-01 Rev. C

- **Read this manual before use.**
- **Keep this manual with the machine at all times.**

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Preface

Safety

Please read this page before preparing your arcade cabinet for game play.

The following safety instructions apply to all game operators and service personnel. Specific warnings and cautions will be included throughout this manual.

Use the following safety guidelines to help protect the system from potential damage and to ensure your personal safety:

- Make sure that the switch on the back of the computer is set to match the AC power in use at your location:
  - 115 volts / 60Hz in most of North and South America and some Far Eastern countries such as Japan, South Korea and Taiwan
  - 230 volts / 50Hz in most of Europe, the Middle East and the Far East
- To help prevent electric shock, plug the system into a properly grounded power source. These cables are equipped with 3-prong plugs to help ensure proper grounding. Do not use adapter plugs or remove the grounding prong from a cable. If you must use an extension cable, use a 3-wire cable with properly grounded plugs.
- To help protect your system from sudden increases and decreases in electrical power, use a surge suppressor, line conditioner or Uninterruptible Power Supply (UPS).
- Be sure nothing rests on the system's cables and that the cables are not located where they can be stepped on or tripped over.
- Keep your system far away from radiators and other heat sources.
- Do not block cooling vents.

Precautions for Game Operation

- To avoid injury and accidents, people who fall under the following categories should not play the game:
  - Those who need assistance when walking.
  - Those who have high blood pressure or a heart problem.
  - Those who have experienced muscle convulsions or loss of consciousness when playing a video game or similar activities.
  - Those who have trouble in the neck or spinal cord.
  - Intoxicated persons.
  - Pregnant women.
  - Persons susceptible to motion sickness.
  - Persons who do not abide by the warning labels on the game.
- A player who has never been adversely affected by light stimulus might experience dizziness or headache when playing the game. Small children can be especially susceptible to these conditions. Caution guardians of small children to keep watch over their children during play.
- Instruct those who feel sick during play to see a doctor.
- To avoid injury from falling objects, and electric shock due to spilled drinks, instruct players not to place heavy items, food, or drinks on the product.
- To avoid electric shock or short circuit, do not allow customers to put hands and fingers or extraneous matter in the openings of the product.
- To avoid risk of injury from falling, immediately stop customers from leaning against or climbing on the product.

Warnings

To avoid electrical shock, unplug the cabinet before performing installation or service procedures.

If a power cord is damaged, it must be replaced by the equivalent power cord available from GLOBAL VR or your distributor.

GLOBAL VR® assumes no liability for any damages or injuries incurred while setting up or servicing the cabinet. Only qualified service personnel should perform installation or service procedures!

Environmental Conditions

Cabinet is intended for indoor use only. Be sure to keep the cabinet dry and maintain operating temperatures of 10°-40°C (50°-104°F).

FCC Notices (United States)

Electromagnetic Interference (EMI) is any signal or emission radiated in free space or conducted along power or signal leads, that endangers the functioning of radio navigation or other safety service, or that seriously degrades, obstructs, or repeatedly interrupts a licensed radio communications service. Radio communications services include, but are not limited to, AM/FM commercial broadcast, television, cellular services, radar, air-traffic control, pager, and Personal Communication Services (PCS). These licensed services, along with unintentional radiators such as digital devices (including computer systems) contribute to the electromagnetic environment.

Electromagnetic Compatibility (EMC) is the ability of items of electronic equipment to function properly together in the electronic environment. While this computer system has been designed and determined to be compliant with regulatory agency limits for EMI, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference with radio communications services, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Re-orient the receiving antenna.
- Relocate the cabinet relative to the receiver.
- Plug the game into a different outlet so that the computer and the receiver are on different branch circuits.

If necessary, consult a Regulatory EMC representative of GLOBAL VR® or an experienced radio/television technician for additional suggestions. You may find the FCC Interference Handbook, to be helpful. It is available from the U.S. Government Print Office, Washington, DC 20402.

This device has been tested and complies with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instruction manual, it may cause harmful interference with radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

Operation is subject to the following conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

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Chapter 1 — Introduction

EA SPORTS™ NASCAR® Racing: *A Whole Lot More Than Left-hand Turns*

Game Features

- Race bumper to bumper at speeds over 200 MPH
- Fight your way past 30 opponents to capture the lead
- Sling-shot your car into winning position by earning draft-boosts
- Tracks with increasing difficulty let players choose the right play level
- Multi-player mode allows ***up to 10 players*** to race head-to-head to beat their friends
- Earn courtesy halos or bully horns depending on your driving style

Figure 1. Cabinet Dimensions and Weight

Current Requirements (Approximate)

Voltage	Deluxe Cabinet		Standard Cabinet	
	Inrush	Operating	Inrush	Operating
115 VAC	8 Amps	5 Amps	6.5 Amps	4 Amps
230 VAC	4 Amps	3 Amps	3.5 Amps	2 Amps

Hardware Features

- Pentium® D computer
- Nvidia® GeForce® graphics
- 1 Gigabyte RAM
- Widescreen LCD monitor
- Supports dollar bill validator
- 6-Channel Surround Sound
- Force-Feedback Steering
- 4-Speed Shifter
- Unique *Racecar* Cabinet Design

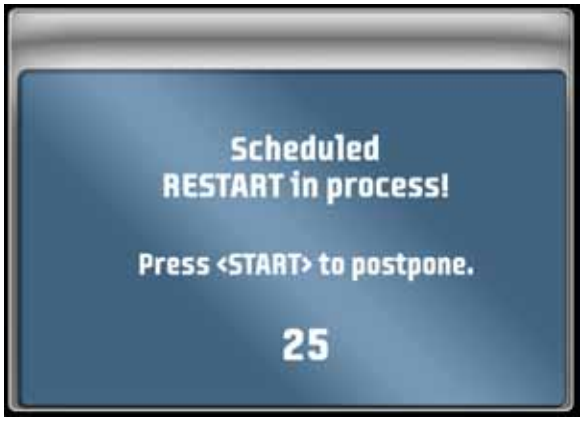
Game Restart Feature

To keep the software running optimally, the cabinet must be restarted every 24 hours.

For locations that turn their games off every day, no additional restarts are needed.

For locations that leave their games turned on continuously, the software will automatically restart the game once every 24 hours according to the following conditions:

1. If the game has been running continuously for at least 24 hours,
   and the game has been in Attract Mode for at least 15 minutes,
   then the following screen will be displayed:



2. The screen will count down for 30 seconds.

   If a user presses the **START** button, the screen will not appear again until the next time the Attract Mode has been running for 15 minutes.

   If nobody presses the **START** button, the game will shut down and restart, which will take about 3 minutes.

3. After the cabinet completes the Restart, the next Restart will be scheduled for 24 hours later. If the initial Restart happens to be scheduled during a busy time for your location, the action of players pressing START to postpone will move the restart to a time that is not busy.

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Chapter 2 — Installing a New Cabinet

Use the following procedure to set up your game:

1. Carefully remove the cabinet from the shipping container, giving yourself plenty of space. Inspect the exterior of the cabinet for any damage.
2. Remove the keys from the coin return slot. Open the coin door to locate the second set of keys.

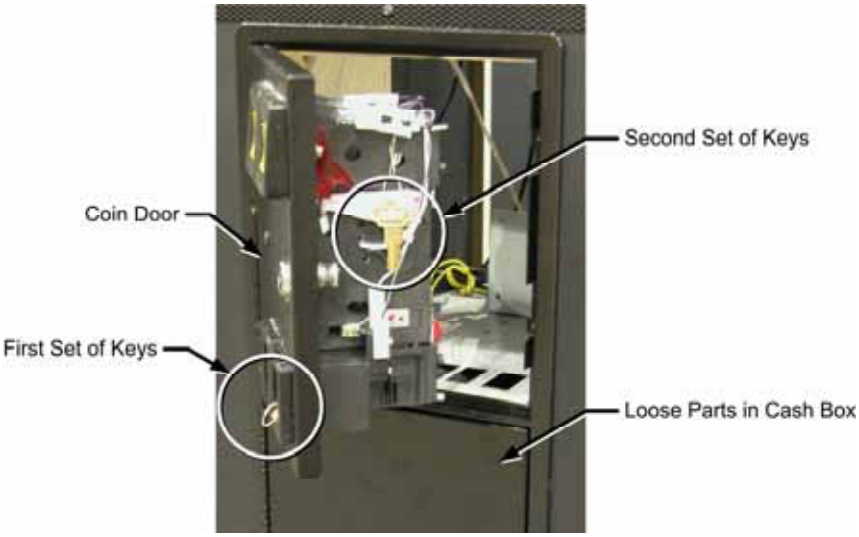

Figure 2. Coin Door with Key Location

3. Locate the envelope containing manuals, software and accessories; you should find the following items in the envelope:
   - System Manual (This Document)
   - Software Restore Guide
   - System Recovery Disk
   - Game Install Disk
   - Cabinet Number Decals
4. Open the cash-box door; you should find the following items in the cash box:
   - AC Power Cord
   - OEM Documents
   - CAT-5 Network Cable
5. Your game cabinet should arrive ready to play, but it is advisable to check inside in case any components have shifted or come loose during shipping. Remove the three access panels from the back of the cabinet (see page 30), and verify that all components are securely mounted, and all cables and wires are securely connected. See *Chapter 9 — Diagrams and Schematics*, beginning on page 69, for wiring and connection diagrams.
6. Connect the AC power cord from the cabinet to a grounded (3-terminal) AC wall outlet.
7. Power ON the cabinet using the ON/OFF switch located on the lower rear of the cabinet. Verify that the game boots properly.

   Note: The Steering Wheel will turn as the steering auto calibrates during boot. Do not touch the wheel during calibration.

8. If the software detects a hardware problem during boot, an error screen will appear. Refer to *Error Message Screens* on page 62 for help with any error screens that may appear.
9. Once the Attract movie starts, play a game to verify that everything works properly.
10. Enter the Operator Menu and set up pricing and other settings.
11. Refer to the section that follows to link cabinets for head-to-head racing.

Linking Cabinets

You can link **up to Ten Cabinets** for head-to-head competition. Once the cabinets are linked in hardware and software, the Attract Mode movies will synchronize, and players can choose to play individually or race against other players. Motion and Non-Motion Cabinets will link.

Each cabinet ships with a CAT-5 Ethernet cable. Use this cable to link two cabinets directly, or connect it to an Ethernet hub or switch to link more than two cabinets. GLOBAL VR has tested linking with the following switches:

- 5-Port Switch: LINKSYS® SD205
- 16-Port Switch: D-Link® DSS-16+

Important: DO NOT use crossover couplers to link this game**.** The motherboard automatically detects a direct connection to another game. Crossover couplers shipped with older racing games **will not work**.

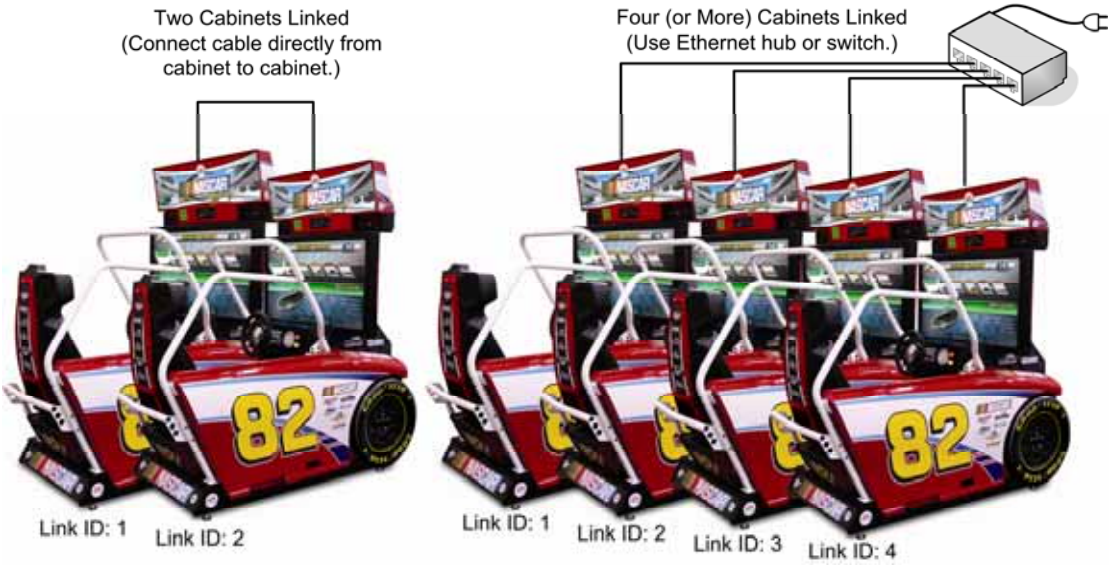

Figure 3. Linking Cabinets

1. **Before connecting the Ethernet cables** open the Operator Menu **Machine Settings: Settings** menu on each cabinet and set the Link ID number. Cabinets should be numbered in sequence from left to right, and each cabinet must have a unique number: 1, 2, 3, etc. Exit the Operator Menu to reset the number in the software.

   Note: If you skip a number in the cabinet ID sequence, such as numbering cabinets 1, 2, 3, & 5, the skipped number will show up as an empty outline in the **WAITING FOR OTHERS** screen (see page 12).

   Important: All linked cabinets must run the same **Software Game Version**, displayed in the Operator Menu **Machine Info** screen as **Game Version**.

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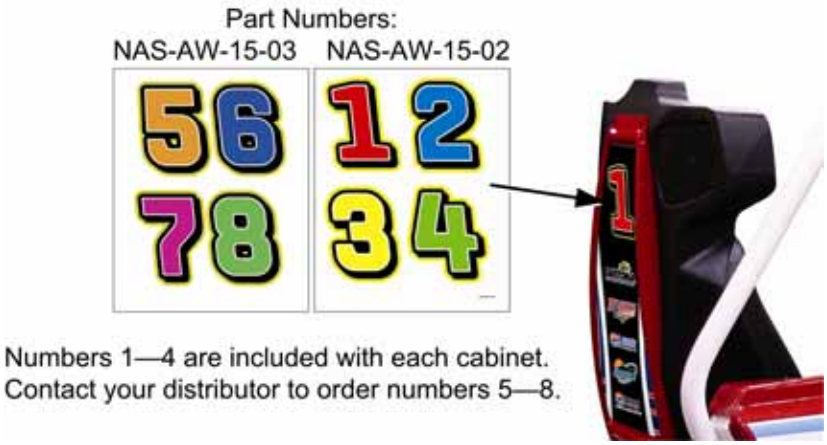
2. Locate the 10' Ethernet cable in the cash box of each cabinet.
3. **To link two cabinets**: Connect one Ethernet cable between the Ethernet ports on the power plate of each cabinet. **DO NOT use a crossover coupler.**
4. **To link more than two cabinets**: Connect an Ethernet cable from the Ethernet port on the power plate of each cabinet to an Ethernet hub or switch (not included) that supports 100 Mbps connection speed. (See recommended switches on the previous page.) **DO NOT use a crossover coupler**. Connect the Hub or Switch to AC power.
5. Locate the number decals included with each cabinet, and place the appropriate number on the back of the seat of each linked cabinet to show players which number they are in the race.



Linking Errors

1. If more than one cabinet has the same Cabinet Link ID number, these cabinets will not link. Repeat Step 1 to correct duplicate Link ID numbers.

   If the software detects a duplicate Link ID number, the *Select A Link ID* menu, shown below, will automatically appear and prompt you to change the number.

Select A Link ID
Link IDs should be in sequential order
starting with the leftmost cabinet
1 2 3 4 5 6 7 8 9 10
Use the steering wheel to change the number. Press <START> when done.

2. Make sure the Game Settings and Coin Settings are the same for all linked cabinets. You will have unhappy customers if a setting such as *Winner Gets Free Game* is enabled on some cabinets and disabled on others. If the settings listed below are mismatched on a set of linked cabinets, a Blue Dot will appear in the Attract Mode, and you will see an explanation of the problem on the **Machine Settings: Info** screen.

   - Software Game Version
   - Free Game
   - Link ID
   - Free Game Min Players
   - Race Length
   - Disabled Tracks

3. All linked cabinets must run the same Software Game Version and have a Game Dongle set for the same region. A screen like the one shown below will appear it there is a mismatch. You will need to update software or change the game dongle to make all linked cabinets match.

Checking the Game Dongle

The cabinet uses a Game Dongle to activate the game software. If the dongle is missing, the game will not run. When a USB Game Dongle is installed and working properly, a **red** LED will illuminate inside the dongle.

For a Game Dongle to be recognized correctly, it should be connected before the cabinet is powered ON. If the software does not recognize the Game Dongle, make sure the Dongle is connected properly, and then power cycle the cabinet to see if this resolves the problem.

If the dongle should come out while the game is running, a NO DONGLE screen will appear. If this happens, the dongle can be re-installed without rebooting the game.

Note: The dongle supplied with the cabinet is specific to the game software version. Future software upgrades may require a new dongle.

Important: Some of your cabinet information is stored in the dongle, so if you replace your computer, **remove the dongle and keep it with the cabinet**.

Figure 4. USB Game Dongles

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Chapter 3 — Driving a Race

This section describes the basics of starting and driving a race.

1. **Select a driver**: This screen appears after you insert coins and press **START** or the gas pedal. Turn the Wheel to highlight a driver. Each screen displays stats about the driver. Press the Gas Pedal to select.

   Note: If the countdown in the upper right corner reaches **0** on any selection screen, the highlighted item is automatically selected.

2. **Select Transmission**: Turn the wheel to select Automatic or Manual (Stick Shift), and press the Gas Pedal to select.

   Note: Select Track is not available if another driver in a linked cabinet is on the Waiting for Others screen. In this case you will automatically join that player's race.

3. **Select Track**: Turn the wheel to select a track. Each screen displays stats about the track. Press the Gas Pedal to select.

   Tracks are rated by difficulty, *Normal*, *Hard*, or *Expert*. Expert tracks can be locked to keep novice players from selecting them accidentally (see *Note: Motion Cabinets have* an additional setting for Motion Platform Strength.

   Game Settings: Settings Menu on page 17). If they are locked, press the ♪ button to unlock.

4. **Waiting for Others**: If the cabinet is linked, this screen gives other players 30 seconds to join the race. Press **START** or the Gas Pedal to speed up the countdown.

   Your cabinet will be shown in green, with a pulsing edge, and say ***READY***.

   Cabinets shown in blue, that say ***AVAILABLE***, are ready for new players to coin up.

   Cabinets shown in orange or yellow, that say ***JOINING***, are in the process of joining the race. Once they join, they will turn green and say ***READY***.

   Cabinets shown in gray are in the Operator Menu.

   Cabinets shown only as a white outline are already in a race or not connected.

Note: Players cannot start a solo race while the Waiting for Others screen is displayed on a linked cabinet.

Once the race starts, useful information is displayed on the screen, as shown below.

Number, Position, and Driver of Next Car Ahead of You
Time Remaining to Reach Next Checkpoint
Current Lap / Total Laps in Race
Your Position
Your Time on the Current Lap
Your Best Lap Time
Gap Between You and Leader
Time Since Start of Race
Indicates Amount of Draft Accumulated
Bright Green Indicates you are Drafting off the Car Ahead
Halo Awarded for Courteous Driving (Horns for Rude Driving)
Indicates You have Enough Draft to Boost
Engine RPMs & Gear Number
Your Speed
29TH
PLACE
73
LAP
1/5
DRAFTING
BOOST READY
192

Figure 5. Typical Race Screen

The **DRAFTING** indicator shows when you have accumulated enough draft off the car ahead of you to get a burst of speed to pass. Once **BOOST READY** lights up, you can slingshot around the car ahead.

When you make it into first place, the **Leader Light** will light up below the marquee.

To quit a game (in a solo race only), press all four control panel buttons at the same time. (This feature is useful to Operators who want to test the game and then quickly return it to Attract Mode. It can be Disabled or Enabled from the Operator **Game Settings: Settings** Menu.)

As you drive, you can press the **LOOK BACK** button to see what's happening behind you.

Press the **VIEW** button to change your view of the race.

Press the ♪ button to turn down the music. Press again to stop the song that is playing. Press a third time to start a new song.

Note: Not all tracks and drivers are available in the international version.

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Chapter 4 — Operator Menu and Game Setup

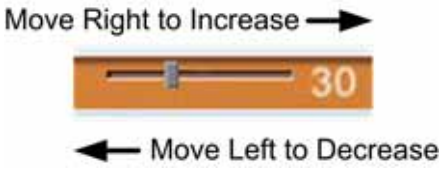
This chapter describes how to use the Game Operator menu to set up the game, diagnose problems, and view gameplay and earnings statistics.

Navigating the Operator Menu

1. With the game running in Attract Mode, open the coin door and press the **TEST/BACK** button on the Operator Button Panel to open the Operator **Main Menu**.

Figure 6. Operator Button Panel

2. Use the driving controls to change settings as described below.
3. Once you enter the Operator Menu, use the **VIEW** and ♪ buttons to move up and down through the main list on the left side of the screen. Pause over a menu item to open the submenu below it, and then use the **VIEW** and ♪ buttons to move through the submenu items.
4. When you move over a submenu item, a blue highlight will appear around the item. Press the **START** button to open the associated menu or screen.
5. Once you open a menu, use the **VIEW** and ♪ buttons to navigate through the menu items. Press **START** to select an item and change its setting
6. Some menu items, such as volume levels (see Figure 9 on page 17) use sliders to set numeric values. A slider, as shown below, will appear when you highlight the item and press **START**. To set the slider, press the **VIEW** and ♪ buttons to increase or decrease the value, and then press **START** again to save the selected value.



7. Some items use popup menus to select settings, as shown below. The popup menu will appear when you highlight the item and press **START**. Press the **VIEW** and ♪ buttons to select from the popup menu, and then press **START** again to save the selected value.

8. When you finish with a menu, press the **LOOK BACK** button to return to the main menu list on the left side of the screen.
9. To exit from the Operator Menu, select **Resume Game** at the bottom of the menu list and press **START**.

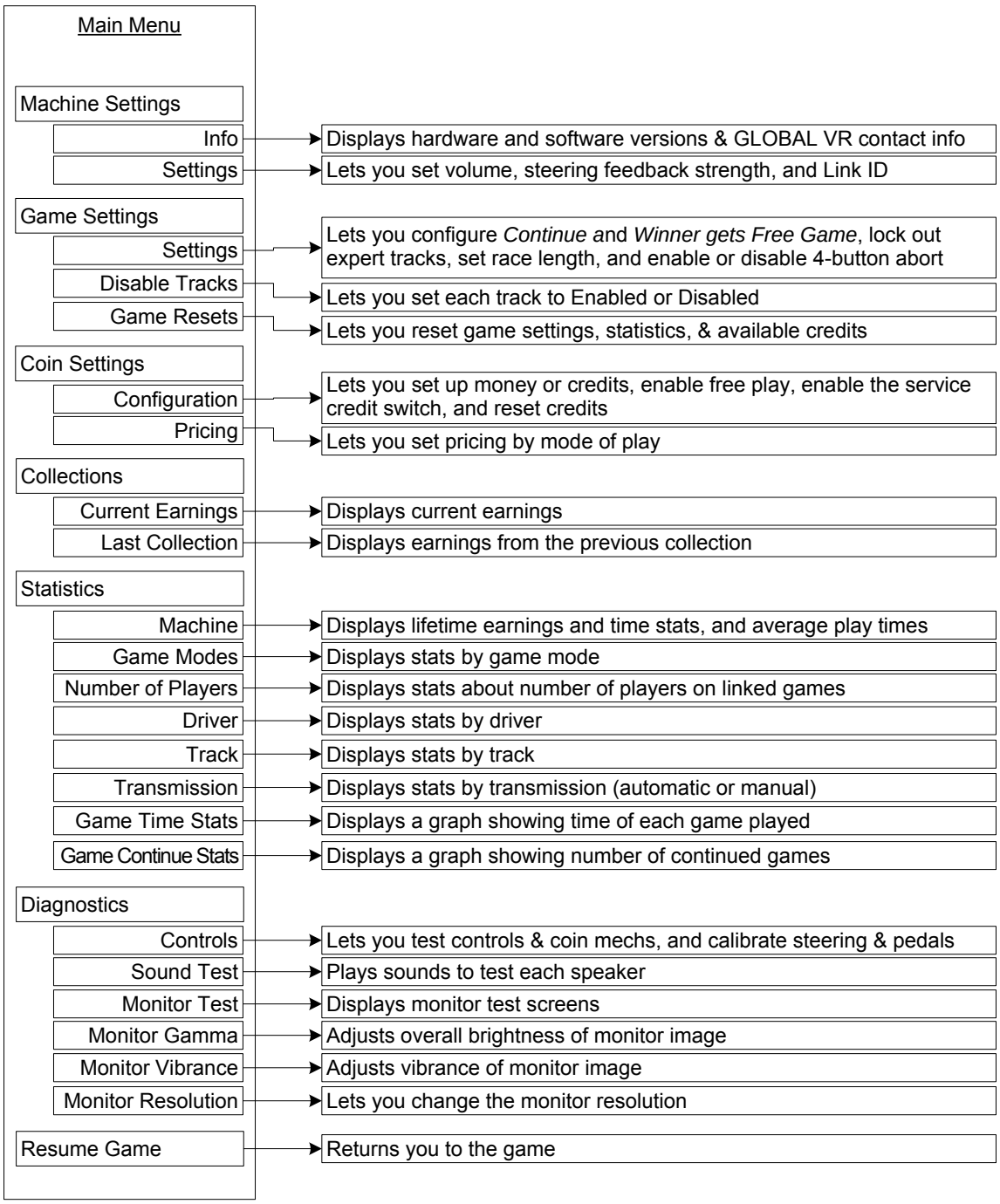

Main Menu
Machine Settings
Info
Displays hardware and software versions & GLOBAL VR contact info
Settings
Lets you set volume, steering feedback strength, and Link ID
Game Settings
Settings
Lets you configure Continue and Winner gets Free Game, lock out expert tracks, set race length, and enable or disable 4-button abort
Disable Tracks
Lets you set each track to Enabled or Disabled
Game Resets
Lets you reset game settings, statistics, & available credits
Coin Settings
Configuration
Lets you set up money or credits, enable free play, enable the service credit switch, and reset credits
Pricing
Lets you set pricing by mode of play
Collections
Current Earnings
Displays current earnings
Last Collection
Displays earnings from the previous collection
Statistics
Machine
Displays lifetime earnings and time stats, and average play times
Game Modes
Displays stats by game mode
Number of Players
Displays stats about number of players on linked games
Driver
Displays stats by driver
Track
Displays stats by track
Transmission
Displays stats by transmission (automatic or manual)
Game Time Stats
Displays a graph showing time of each game played
Game Continue Stats
Displays a graph showing number of continued games
Diagnostics
Controls
Lets you test controls & coin mechs, and calibrate steering & pedals
Sound Test
Plays sounds to test each speaker
Monitor Test
Displays monitor test screens
Monitor Gamma
Adjusts overall brightness of monitor image
Monitor Vibrance
Adjusts vibrance of monitor image
Monitor Resolution
Lets you change the monitor resolution
Resume Game
Returns you to the game

Figure 7. Operator Menu Flowchart

Note: Motion Platform Cabinets have additional menu items, including a Motion Test under Diagnostics.

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Machine Settings: Info Screen

This is the first screen displayed when you press the **TEST/BACK** Button. It displays important information about the cabinet, and contact information for GLOBAL VR.

Note that the box near the bottom of most Operator Menu screens shows you how to navigate through the menus using the game control panel.

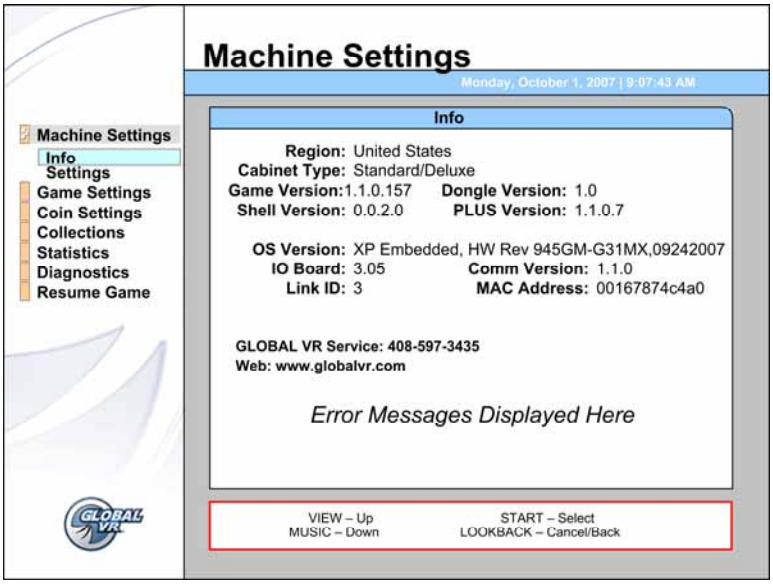

Figure 8. Machine Info Screen

Menu Item	Description
Date and Time	The current date and time is displayed on each menu screen. If you need to change the date or time, refer to *Setting the Date and Time* on page 53.
Region	Displays the region or country of operation.
Game Version	Displays the installed software game version. (Linked cabinets must run the same version.)
Shell Version	Displays the software shell version.
Dongle Version	Displays the localized version of the software, as read from the Game Dongle.
PLUS Version	Displays the PLUS data engine version.
OS Version	Displays the operating system version.
IO Board	Displays the version of the GVR I/O Mini PCB.
Link ID	Displays the Cabinet Link ID.
Comm Version	Displays the communication software version.
MAC Address	Displays the MAC address of the system computer. This number may be useful to Tech Support for troubleshooting certain cabinet linking problems.
Support	Displays the GLOBAL VR support phone number.
Web	Displays the GLOBAL VR website URLs.
E-mail	Displays the GLOBAL VR support e-mail address.
Error Messages	If you see a **Red Dot** in the lower right corner of the Attract Screen, this indicates a hardware error was detected. If you see a **Blue Dot**, this indicates Cabinet Mismatching was detected. This means key settings are not the same in linked cabinets. The error will be explained on this screen in the area below the GLOBAL VR information. For more information, see page 62.

Machine Settings: Settings Menu

This menu lets you set audio volume, steering feedback strength, and Link IDs. It also displays available Service and Coin Credits.

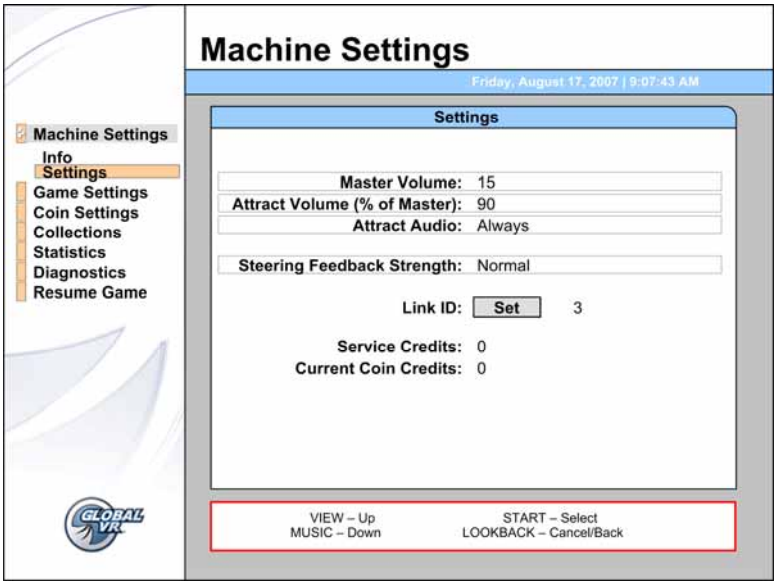

Figure 9. Machine Settings Menu

Menu Item	Description
Master Volume	Sets the overall cabinet volume from 0—100.
Attract Volume (% of Master)	Sets the Attract Mode volume from 0%—100% of Master Volume.
Attract Audio	Sets how often the Attract Mode sound plays. Options are *Never*, *Sometimes (1/3)*, or *Always*. The *Sometimes 1/3* setting plays Attract Audio 1/3 of the time.
Steering Feedback Strength	Sets how strong the Steering force feedback feels. Options are *Normal* or *Light*.
Link ID	Click **Set** to set the cabinet Link ID, used when linking two or more cabinets. The current Link ID is displayed to the right of the **Set** button. **Note:** Link IDs should be sequential from left to right for a set of cabinets. If two cabinets have duplicate link IDs they will not link, and the *Select A Link ID* menu will automatically appear.
Service Credits	Indicates Service Credits available on the cabinet. Service Credits are counted separately from Coin Credits in the Collections data. If *Service Credits Switch* is enabled in the **Coin Settings: Configuration** menu, you can add Service Credits using the **SERVICE** button on the Operator Button Panel.
Current Coin Credits	Indicates regular (coin drop) Credits currently available on the cabinet.

Note: Motion Cabinets have an additional setting for Motion Platform Strength.

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Game Settings: Settings Menu

This menu lets you set up play again and continue pricing, free game awards to winners, race length, and lock out Expert tracks.

Whenever you change a setting on this screen, select **Reset All Standings** from the **Game Settings: Game Resets** menu.

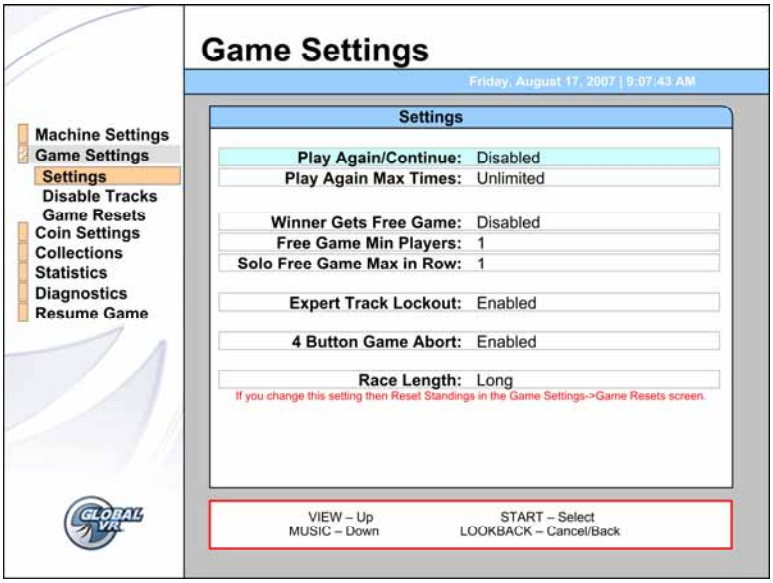


Figure 10. Game Settings Menu

Menu Item	Description
Play Again/Continue	If set to *Enabled*, allows you to set different pricing to start playing or continue (play again). Set the pricing from **Coin Settings: Pricing**.
Play Again Max Times	Lets you set the maximum number of times a player can use *Continue*. Options are *1*, *2*, or *Unlimited*.
Winner Gets Free Game	If enabled, the winner of a race gets a free game.
Free Game Min Players	If Winner Gets Free Game is enabled, this sets the minimum number of players required for the free game to be awarded. Options are *1—10*.
Solo Free Game Max Time in Row	If Winner Gets Free Game is enabled, and Free Game Min Players is set to *1*, this sets the maximum number of times in a row the free game can be awarded. Options are *1—3 Times*.
Expert Track Lockout	If set to *Enabled*, players have to press the ♪ button to select an Expert track. This prevents novice players from selecting an Expert track accidentally from the Track Select screen.
4 Button Game Abort	If set to *Enabled*, a solo race can be aborted by pressing all four control panel buttons at the same time.
Race Length	If set to *Short*, this shortens the length of all races by reducing the number of laps in a race. The number of laps per race varies by track. Options are *Long* and *Short.* If you change this setting, you should also reset Standings from the **Game Settings: Game Resets** menu.

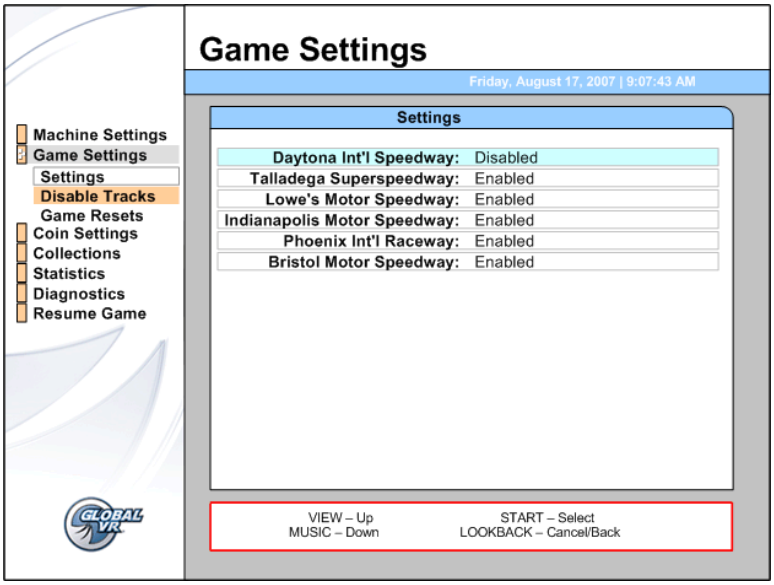
Game Settings: Disable Tracks Menu

This screen allows you to disable or enable any of tracks. Disabled tracks do not show up in the Track Select screen.

If only one track is enabled, the game will skip the Select Track screen when a player starts a game.

If fewer than five tracks are enabled, the software ignores the Expert Track Lockout setting (set in the Game Settings: Settings menu).

Note: Linked cabinets must have the same tracks available. If linked cabinets have different tracks available, the software will resolve the conflict by ignoring Disable Tracks settings. A blue dot will appear in the lower right corner of the Attract screen to indicate a Cabinet Mismatch.



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Game Settings: Game Resets Menu

This menu lets you restore factory default settings, or reset cabinet statistics, standings, or available credits. When you select any reset button except Reset Credits, a confirmation box will appear, allowing you to accept or cancel your reset selection.

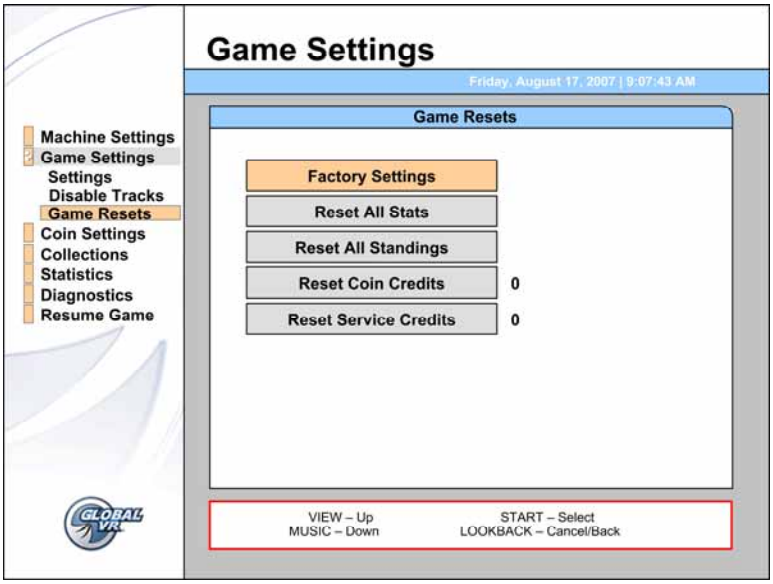

Figure 11. Game Resets Menu

Menu Item	Description
Factory Settings	Returns all the Game settings to the default factory settings. Does not affect records and statistics.
Reset All Stats	Resets all game play Statistics. Does not affect the Lifetime Totals.
Reset All Standings	Resets the Standings showing top racers.
Reset Coin Credits	Resets available Coin Credits to 0. Does not affect Service Credits. The number next to the button shows available credits. Any Coin Credits displayed when you reset are counted as Unspent Monies in the **Collections** screens.
Reset Service Credits	Resets available Service Credits to 0. Does not affect Coin Credits. The number next to the button shows available credits.

Coin Settings: Configuration Menu

This menu lets you configure coin or credit pricing, turn free play on or off, enable service credits, and reset credits.

Note: Coin Settings on **International Cabinets** are in Credits only.

Important: Whenever you change the **Coins per $ 1.00** setting, the **Coin Settings: Pricing** screen (see page 22) will change automatically. Always check the **Coin Settings: Pricing** screen before you exit to verify the pricing is the way you want it.

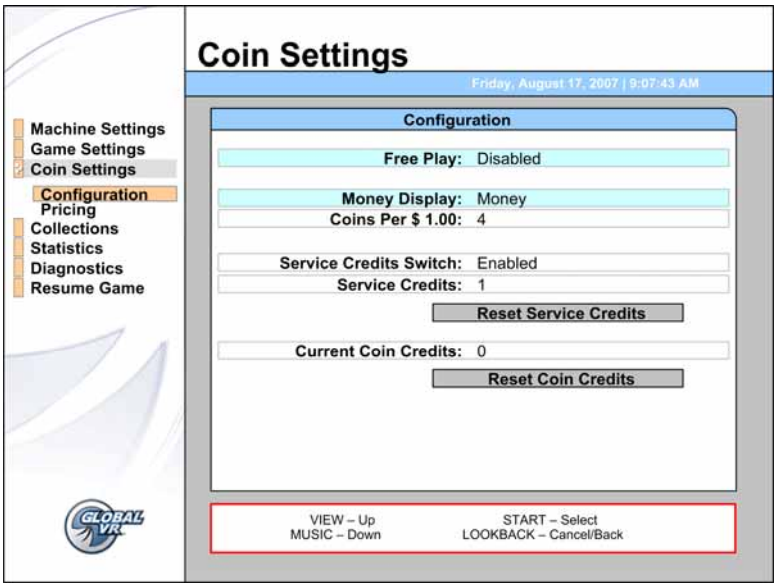

Figure 12. Coin Settings: Configuration Menu

Menu Item	Description
Free Play	Sets Free Play to *Enabled* or *Disabled*.
Money Display	Sets whether the cabinet displays pricing in Money or Credits.
Coins Per $ 1.00	Sets the number of coin drops it takes to reach a unit of money. Default is 4 in the USA (4 quarters per $). Options are *1, 2, 4, 5, 10, 20, 25,* and *50.*
Service Credits Switch	If set to *Enabled*, lets you add Service Credits by pressing the **SERVICE** button on the Operator Button Panel during Attract Mode. Service Credits are used for testing game play, and are not counted in the collection statistics.
Service Credits	Displays the number of Service Credits currently available.
Reset Service Credits	Resets available Service Credits to 0.
Current Coin Credits	Displays the number of coin-drop credits currently available.
Reset Coin Credits	Resets available coin credits to 0. Does not affect service credits. The number next to the button shows available credits. Any Coin Credits displayed when you reset are counted as Unspent Monies in the **Collections** screens.

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Coin Settings: Pricing Menu

This menu lets you set pricing to start or continue a game. If Money Display is set to Money in the **Coin Settings: Configuration** menu (see page 21), the Money column shows the price in money. Otherwise it displays the price in credits.

Note: Coin Settings on International cabinets are in Credits only.

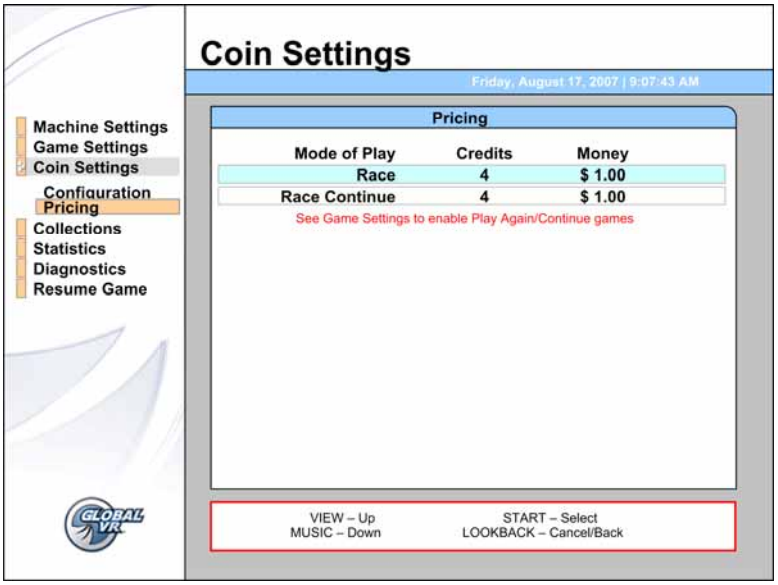

Figure 13. Coin Setting: Pricing Menu

Menu Item	Default	Description
Race	4	Lets you set the number of credits required to start a new game. Options are *1—50*.
Race Continue	3	Lets you set the number of credits required to continue a game (play again). Options are *1—50*. Play Again/Continue must be Enabled in the **Game Settings: Settings** menu to use this feature.

Collections Screens

The **Current Earnings** screen displays earnings and Service Credits entered for the current period. To end the current period, select **Reset Bookkeeping (Do Collection)**, press **START**, and confirm your selection in the pop-up menu that appears.

When you select **Reset Bookkeeping (Do Collection)** all amounts are reset to zero (0) out in the Current Earnings screen, and the data is moved to the **Last Collection** screen.

Lifetime Earnings and Lifetime Average Weekly Earnings are displayed on the **Statistics: Machine** screen described on page 24.

Earnings are displayed in either Money or Credits, depending on the setting in the **Coin Settings: Configuration** screen. **International Cabinets** display earnings in Credits only.

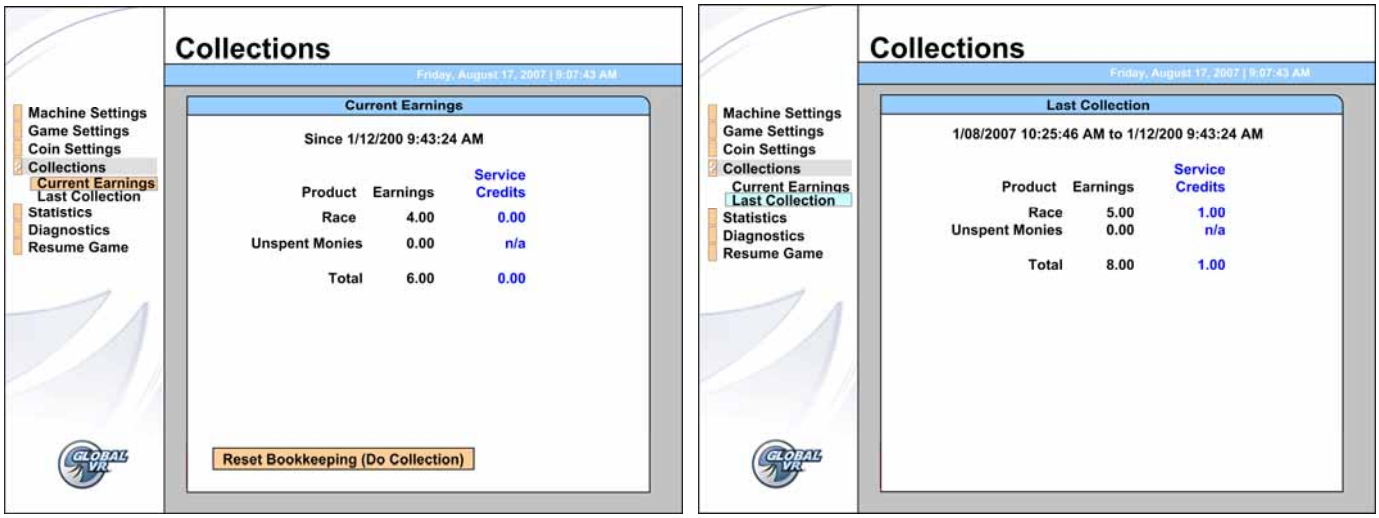

Figure 14. Collections: Current Earnings Screens

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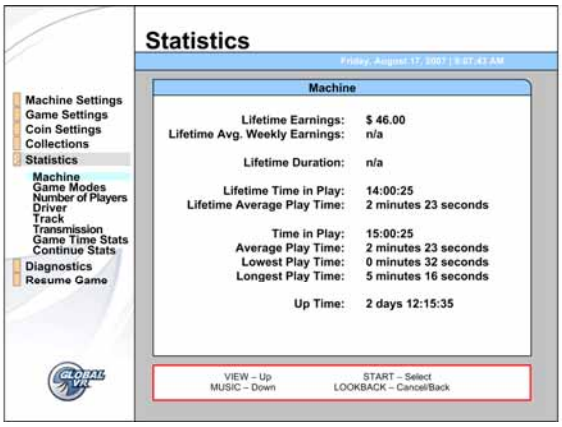
Statistics Screens

The Statistics screens allow the operator to view the game play statistics collected by the cabinet. The lifetime totals are never reset unless the operating system is restored using the System Recovery Disk. To reset the current Total for any screen, use the **Game Settings: Game Resets** menu described on page 19.



Statistics: Machine displays general statistics about the cabinet.

Lifetime earnings — total earnings for cabinet.*

Lifetime Avg. Weekly Earnings — earnings per week averaged over cabinet lifetime.*

Lifetime Duration — the date when the operating system was installed. This is updated if you run the System Recovery Disk.

Lifetime Time in Play — total time the cabinet has spent being played.

Lifetime Average Play Time — lifetime average length of a game.

Time in Play — total time the cabinet has spent being played since the last reset.

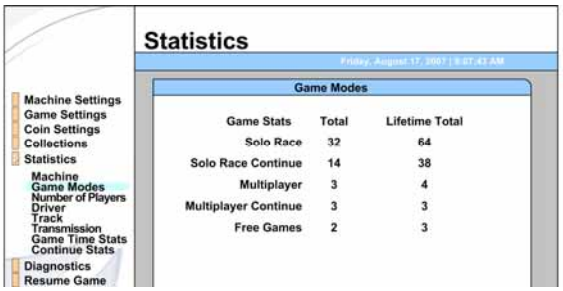
Average Play Time — average length of a game since the last reset.

Lowest Play Time — shortest game ever played since the last reset.

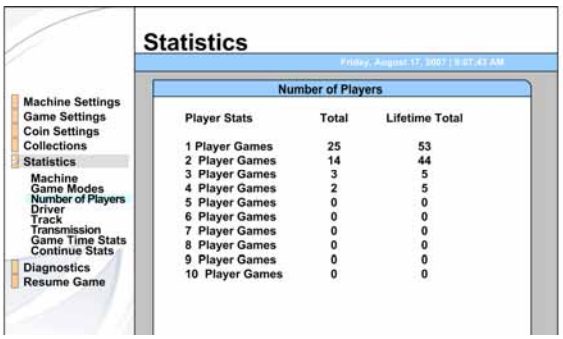
Longest Play Time — longest game ever played since the last reset.

Up Time — total time the cabinet has been turned on since the last reset.

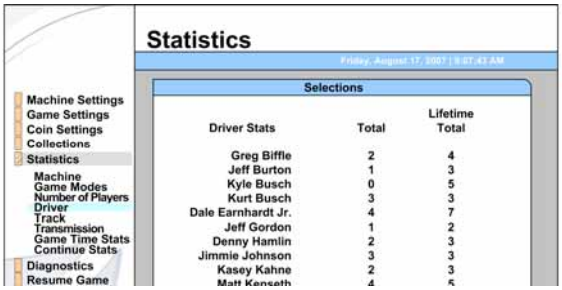
***International Cabinets** display earnings in Credits only.



Statistics: Game Modes displays the total number of games played and continued for solo and multiplayer (linked cabinet) races. Shows Total for the current period, and Lifetime Total.



Statistics: Number of Players displays the number of games played by the number of players per game on linked cabinets. Shows Total for the current period, and Lifetime Total.



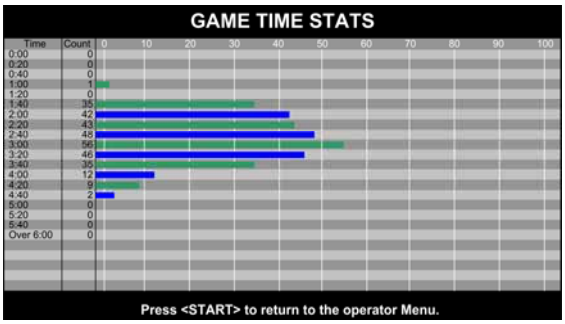
Statistics: Drivers displays the number of games played using each driver for the current period, and Lifetime Total.

Note: Not all tracks and drivers are available in the international version.

Statistics: Track displays the number of games played using each track for the current period, and Lifetime Total.

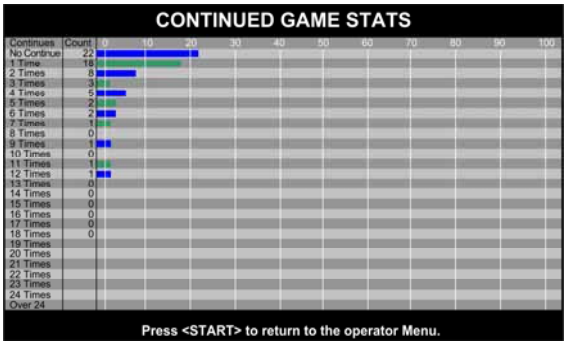
Note: Not all tracks and drivers are available in the international version.

Statistics: Transmission displays the number of games played with Manual and Automatic transmissions for the current period, and Lifetime Total.



Statistics: Game Time Stats displays a graph showing how long the games last. For example, in the graph below, 85 games lasted between 3 minutes, 20 seconds, and 3 minutes 39 seconds; only one game lasted over 4 minutes 40 seconds.

Press the **START** button to exit this screen.



Statistics: Continued Game Stats displays a graph showing how many times players Continued after a game ended. For example, in the graph below, 12 players continued once, and 5 players continued twice.

Press the **START** button to exit this screen.

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Diagnostics: Play Control Test

The Diagnostics menus help you test cabinet hardware and adjust the monitor.

The Play Control Test menu lets you test driving controls, operator buttons, and coin mechs, as described below. To exit from this menu, press the **START** and **VIEW** buttons together. If you see a ⃠ symbol displayed over a component, it was not detected by the software and may be disconnected; check the wiring for this component.

- **Buttons**: When you press a control panel or Operator button, its picture should highlight on the screen. The dot next to each button will be yellow until the button is pressed, and green after it is pressed. A red dot means the button is stuck in the ON position.
- **Steering Wheel**: When you turn the steering wheel, the graphic should rotate, and the numbers next to the graphic should change to indicate the steering wheel position. Full left position should be about *-127* and full right position should be about *127*. As you turn the wheel, the changing numbers should be smooth and linear. A sudden jump in the numbers, or a different range of numbers, can indicate a bad pot or a loose steering column set screw.
- **Gas & Brake Pedal**: The numbers displayed next to the pedals show the pot value when the pedal is full up, full down, and the current value. When you step on the pedals, the number shown for the current position should change. The difference between the full up and full down values should be about 80 (±5). As you press and release the pedals, the changing numbers should be smooth and linear. A sudden jump in the numbers can indicate a bad pot or a loose set screw on the pedal assembly.
- **Calibrating the Steering and Pedals**: To calibrate the steering wheel and pedals, press the **START** and ♪ buttons together to reset the pots to 0. A ⃠ symbol will appear over the pictures of the pedals and wheel. Turn the steering wheel all the way to the left and the right to set the pot limits. Press each pedal all the way down to set the pot limits.
- **Shifter**: When you shift through the gears, the shifter in the graphic should move to the correct position.
- **Coin Mechs**: When you activate a coin mech, its name (Coin 1 or Coin 2) should turn from white to green, and the number should increment to indicate the number of coins inserted. If the name of the mech stays green, this indicates it is stuck in the ON position. (**Note:** Typically, Coin 1 is the two coin mechs, and Coin 2 is the optional bill validator.)
- **START Button and Leader Light**: The **START** button and Leader Light should blink while the **Play Control Test** menu is open. If either one fails to blink, check the bulb and wiring.

Diagnostics: Sound Test

The Sound Test menu tests the speakers and subwoofer.

Once you enter the sound test, each speaker will play a sound while the graphic indicates the speaker that should be playing, and the onscreen text displays the name of the speaker. The subwoofer will make a low rumbling sound like an engine when it is being tested.

Press the ♪ button at any time to pause or resume the test.

The test will repeat until you press the **START** button or the Operator **TEST/BACK** button to exit.

If any sound comes from the wrong speaker, or any speakers are not working, check the connections to the speakers, audio amp, and PC (see *Audio Amp and Speakers Service* on page 38). Refer to *Audio Troubleshooting* on page 58 for more information on fixing audio problems.

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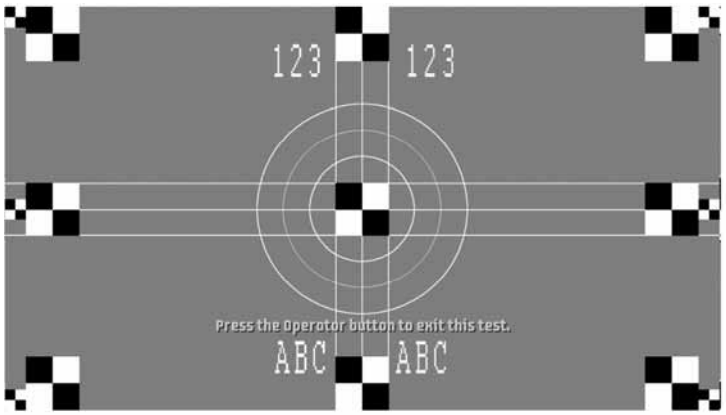
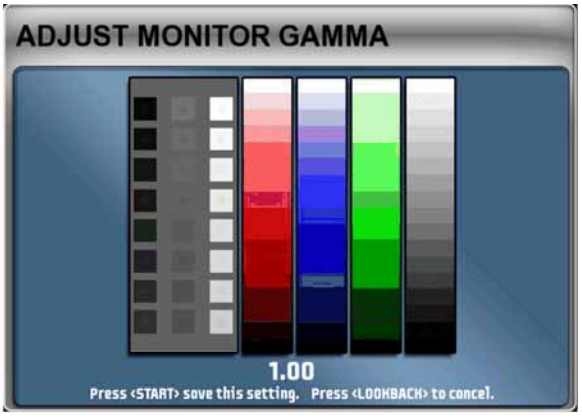
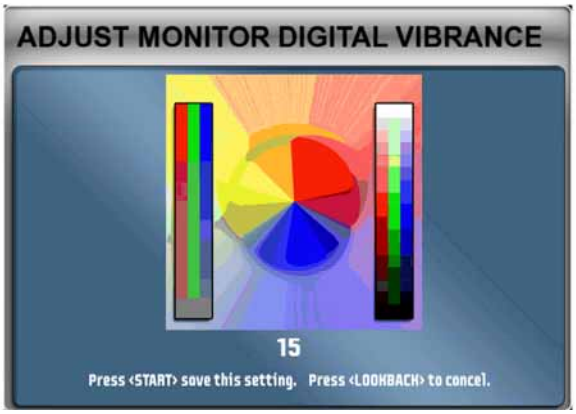
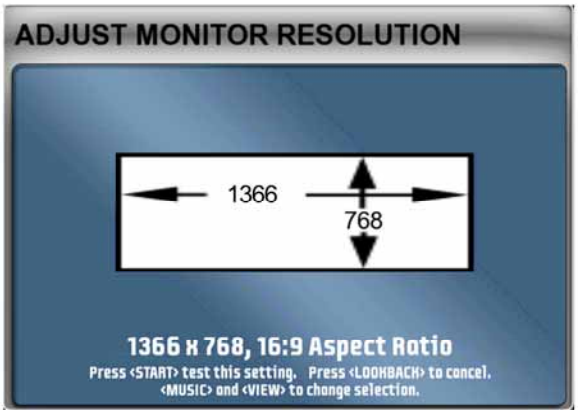
Diagnostics: Monitor Adjustment Screens

Each of the screens shown below will assist you with fine tuning the monitor.









- **Monitor Test:** When you select this menu item, it opens a series of screens designed to help you check monitor performance. Press any control panel button to cycle through a series of screens to test color and geometric alignment. Press the Operator **TEST/BACK** button to exit.
- **Adjust Monitor Gamma:** This screen lets you adjust the overall screen brightness. Press **VIEW** or ♪ to raise or lower the gamma value. To exit without making changes, press **LOOK BACK**. To exit and keep the new setting, press **START**.
- **Adjust Monitor Digital Vibrance:** This screen lets you adjust the overall vividness, or saturation, of the colors. Press **VIEW** or ♪ to raise or lower the vibrance level. To exit without making changes, press **LOOK BACK**. To exit and keep the new setting, press **START**.
- **Adjust Monitor Resolution:** This screen lets you change the monitor resolution. This feature is provided to enhance compatibility with a variety of monitors. Normally, the software detects and sets up the optimal monitor resolution automatically.

  To change the resolution, press ♪ or **VIEW** to cycle through the available options, and then press **START** to test the selected resolution. You will be prompted to press **START** again to keep the setting. Press **LOOK BACK** to exit without making any changes.

Chapter 5 — Software Restoration

Follow the instructions below if you need to re-install software on your cabinet.
Total installation time is about 30 minutes.

Important: ***Do not*** use a Version 1.0 disk with a Version 1.1 disk. Both must be the same version.

Restore Operating System with the System Recovery Disk

Important: When you use the System Recovery Disk, you will erase all game settings, statistics, and collections data stored in the game software. It is advisable to contact Technical Support before using the System Recovery Disk to resolve a problem.

1. Insert the **System Recovery Disk** in the drive and power the cabinet OFF and then ON. When the computer reboots, the CD should run automatically (wait about 30 seconds). You will see the Symantec™ Ghost screen as files are installed on the hard drive.
2. After about 8 minutes, when prompted, remove the CD and reboot the computer. **Do not** insert the Game Install disk yet!
3. Wait for about 5 minutes while the software finishes the installation and reboots the computer. When the process is complete, you will briefly see a message saying "NASCAR OS Installation is Complete." Proceed to run the Game Install disk.

   Note: If you are not sure whether the Operating System installation process is complete, it is OK to insert the Game Install disk (step 1 below). The CD will not run if the process is not complete, and you will need to eject it and insert it again once the process finishes.

Run the Game Install Disk

Important: All linked cabinets must run the same **Game Version**, displayed in the Operator Menu **Machine Info** screen.

1. With the cabinet powered ON and the computer booted, insert the CD labeled **Game Install**. The CD will automatically run (wait about 30 seconds). The Install Shield Wizard will appear as the software copies files to the hard drive.
2. After about 10 minutes, the computer will automatically reboot. A screen will appear saying "There is a CD in the Drive." Remove the CD and press the **START** button to continue. Keep both CDs in a safe place in case you need them in the future.
3. The Calibrate the Accelerator and Brake screen will appear. Press each pedal fully to the floor to set the pot limits.
4. Next, the steering will auto calibrate. Do not touch the wheel as it turns to set the pot limits.
5. The Cabinet Link ID resets to **1** when you install the software. If the software detects another linked cabinet with that link ID number, a screen will prompt you to select a different Link ID.
6. Once the Attract Movie begins, play a game to verify proper operation.
7. Open the Operator Menu and set the sound volume levels, pricing, and other Operator settings.

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Chapter 6 — Service and Repair

CAUTION: GLOBAL VR assumes no liability for any damage or injuries incurred while servicing the cabinet. Only qualified service personnel should perform service and installation of cabinet hardware.

To prevent electrostatic discharge (ESD) damage, handle PCBs by the edges only and use a grounding wrist strap or similar precaution.

Please read the service instructions before working on the cabinet.

DANGER

Always turn the cabinet OFF and disconnect the AC power cord before performing any repair work.

Access Panels on Cabinet Rear

Figure 15. Cabinet Rear

Use the three access panels on the rear of the cabinet, shown in Figure 15, to service internal components.

Monitor Access Door: Open to access LCD monitor, monitor power supply, and cooling fan.

Electronics Access Panel: Remove four (4) Torx® screws to open and *check under the hood*. Open to access Audio Amp PCB, GVRI/O Mini PCB, Force-Feedback Steering PCB, and associated DC power supplies.

Rear Door: Open to access Computer and AC Power Distribution components.

Note: Procedures in this chapter are the same for Deluxe and Standard cabinets unless noted.

Opening the Control Panel

To service the control panel buttons or steering assembly, do the following to remove the control panel from the front of the cabinet:

1. Disconnect the cabinet from AC power.
2. To protect the steering pot, remove the Electronics Access Panel and reach through to disconnect the pot harness. This prevents the risk of breaking the pot if the wires are pulled.
3. Remove the three (3) screws above and three (3) screws below the control panel.

4. Grip the Steering Wheel and use it to carefully pull the control panel assembly straight out from the cabinet. Be careful not to pull the wires. The wire harnesses should be long enough for you to place the assembly in your lap as you sit in the driver's seat.
5. Disconnect the harness connectors from the steering motor and button harness.

Force-Feedback Steering System Service

The major components of the force-feedback steering system are listed below. Figure 16 shows the harness connections. See Figure 35 on page 66 for an exploded-view drawing of the steering wheel and motor assembly, showing the parts in detail.

- Steering Wheel
- Steering Motor
- Force-Feedback PCB (part # COEM-GCE-H2P5A)
- +24 VDC Power Supply
- 5 KΩ Steering Pot (Potentiometer)

The Force-Feedback PCB manages communications between the 5 KΩ steering pot and the computer (via a USB connection). The steering pot sends the computer the steering wheel position as the player drives, and the computer sends back instructions for controlling the steering motor by regulating the power. The force-feedback steering motor is powered by the +24 VDC power supply via the Force-Feedback PCB.

CAUTION: Do not connect the power supply directly to the steering motor. Doing this will damage the motor and the power supply.

A faulty cable or steering-system component can cause steering problems. Refer to *Control Troubleshooting* on page 59 for help with diagnosing steering problems.

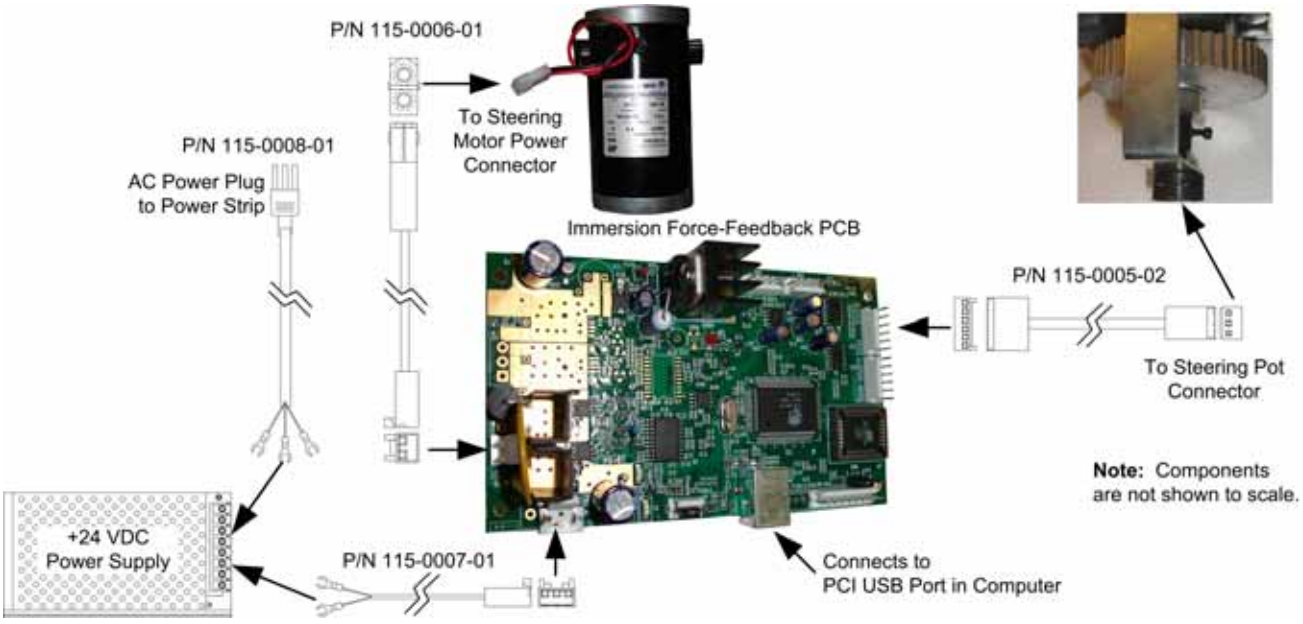
P/N 115-0006-01
To Steering Motor Power Connector
P/N 115-0008-01
AC Power Plug to Power Strip
Immersion Force-Feedback PCB
P/N 115-0005-02
To Steering Pot Connector
Note: Components are not shown to scale.
+24 VDC Power Supply
P/N 115-0007-01
Connects to PCI USB Port in Computer

Figure 16. Force-Feedback Steering System Harnessing Diagram

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5 KΩ Steering Pot (Potentiometer) Replacement

To test a pot, use the **Diagnostics: Play Control Test** screen in the Operator Menu (see page 26). While turning the wheel, the change in the numbers displayed onscreen should be smooth and linear, with no jumps. You can also power off the game and test resistance at the pot. While turning the wheel, you should see a steady linear increase or decrease in resistance, with no jumps. Jumps could indicate a bad pot or a loose steering column set screw. Use Loctite® on the set screw to ensure it is secure.

To replace a pot, refer to Figure 17 and perform the following steps:

1. Open the control panel as described on page 30.
2. Using a 7/64 Allan wrench, loosen the set screw from the steering column and remove the bracket with the 5 KΩ steering pot attached.
3. Using a 1/2-inch wrench, remove the nut and lock washer from the bracket and remove the pot.
4. Reverse these steps to install the new pot. Install the pot with the plastic pin through the small hole in the bracket, as shown in Figure 17 below. Use Loctite to ensure the set screw is secure.
5. Calibrate the steering from the Play Control Test in the Operator Menu after replacing the pot.

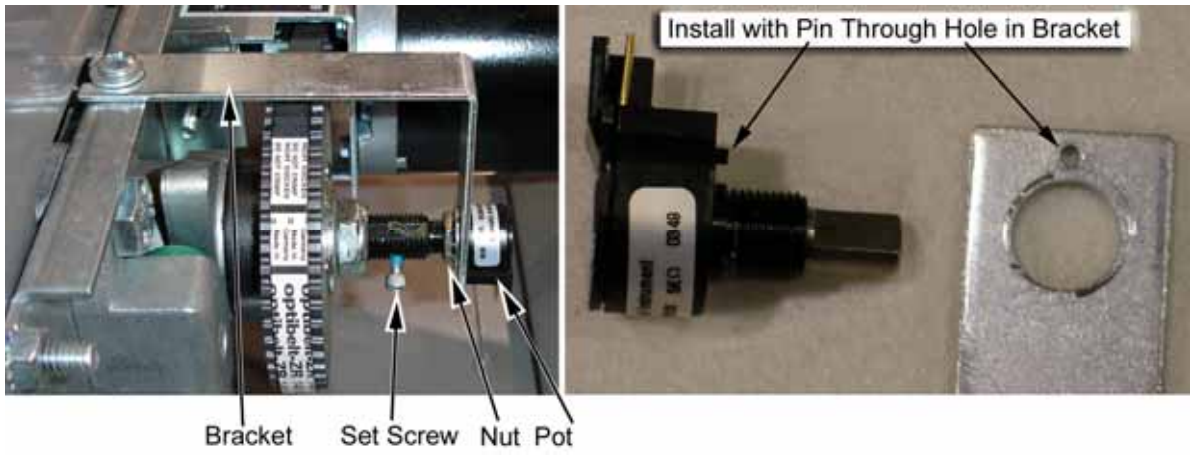

Figure 17. Replacing the 5 KΩ Steering Pot

Force-Feedback Belt or Steering Motor Replacement

Refer to Figure 17 above, and Figure 18, and perform the following steps to remove the force-feedback belt for repair. Always replace the belt if it looks cracked or worn.

1. Open the control panel as described on page 30.
2. Using a 7/64 Allan wrench, loosen the set screw from the steering column and remove the bracket with the pot attached (see Figure 17).
3. Loosen the four (4) 3/8" motor mount Kep nuts that secure the steering motor to the frame (see Figure 18).
4. Using a 10mm socket wrench, loosen the belt tension adjustment bolt several turns until you can slip the belt off of the motor and steering gears (see Figure 18).
5. Inspect the motor gear (the small gear) for wear. A worn gear can quickly wear out a belt. Make sure the two gears are aligned to prevent stress on the belt. Use Loctite on the set screws to ensure they are secure.

6. To replace the motor, remove the four (4) 3/8" Kep nuts that you loosened in step 2, and remove the motor.
7. Reverse these steps to re-install the motor and belt. Adjust the belt tension as described below.

Force-Feedback Belt Tension Adjustment

The belt tension should be adjusted on a new cabinet after one month of initial operation. After that it should be adjusted every 60—90 days for optimal performance. Inspect the gears for wear at the same time. A worn motor gear can wear out a belt.

1. Tighten the tension adjustment bolt on the motor assembly, shown in Figure 18, until the belt is fully stretched, and then loosen the bolt by ½ turn.
2. Calibrate the steering from the Operator Menu after servicing the belt or motor.

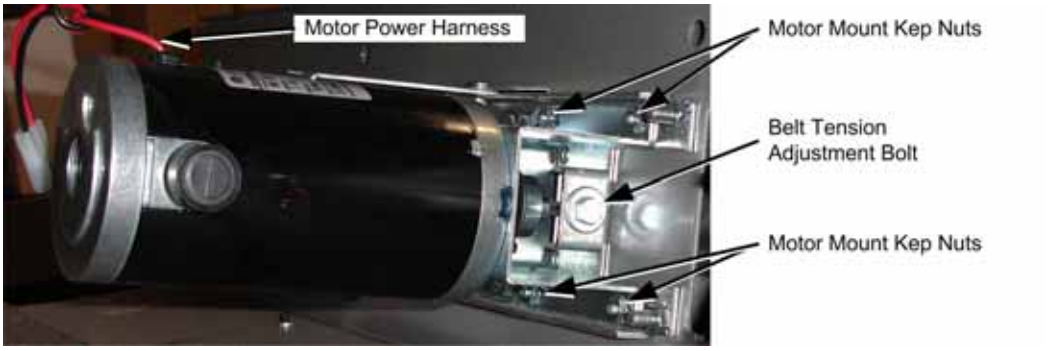

Figure 18. Servicing the Steering Motor

Force-Feedback PCB Replacement

CAUTION: To prevent electrostatic discharge (ESD) damage, handle PCBs by the edges only and use a grounding wrist strap or similar precaution.

If the steering pulls to one side, this could indicate a bad force-feedback PCB or reversed wires between the steering pot and the PCB. Use the following steps to replace the PCB.

1. Disconnect the cabinet from AC power.
2. Remove the electronics access panel (see page 30).
3. Disconnect all cables from the PCB.
4. Remove the four screws that secure the PCB to the mounting feet.
5. Reverse these steps to install the new PCB. Make sure there is some clearance between the PCB components and the cabinet wall to allow air to circulate around the components.
6. Calibrate steering from **Diagnostics: Play Control Test** in the Operator Menu (see page 26).

Driving Control Panel Button Service

The buttons on the cabinets are illuminated with 5-volt C555 bulbs. Refer to Figure 19 and perform the following steps to replace a button bulb or micro switch:

1. Disconnect the cabinet from AC power.
2. Open the control panel as described on page 30 to access the buttons.

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3. When connecting the wires to the micro switch and bulb, refer to the labels on the wires and make sure the connections are correct. See Figure 19 for more information.

CAUTION: Do not connect the 5-volt lamp power wire to the micro switch. This can damage the GVRI/O Mini PCB.

Figure 19. Replacing Button Lamps

Pedal Assembly Service

Perform the following steps to remove the pedal assembly. It is removed and installed as one unit. See Figure 34 on page 65 for an exploded view of the assembly with parts list.

1. Disconnect the cabinet AC power cord and remove the rear door from the cabinet.
2. From inside the cabinet, remove the four (4) 1/4-20 Security Torx bolts that secure the pedal assembly to the cabinet, as shown by the arrows in the picture below.
3. Carefully pull the pedal assembly straight out of the cabinet, being careful not to pull the wires.
4. Disconnect the pedal harness from the main harness.
5. Disconnect the ground wire from the pedal assembly frame.
6. Reverse these steps to install the pedal assembly.
7. After servicing, calibrate the pedals from **Diagnostics: Play Control Test** in the Operator Menu.

Important: Be sure to replace the ground wire. It is needed to ensure proper pedal function.

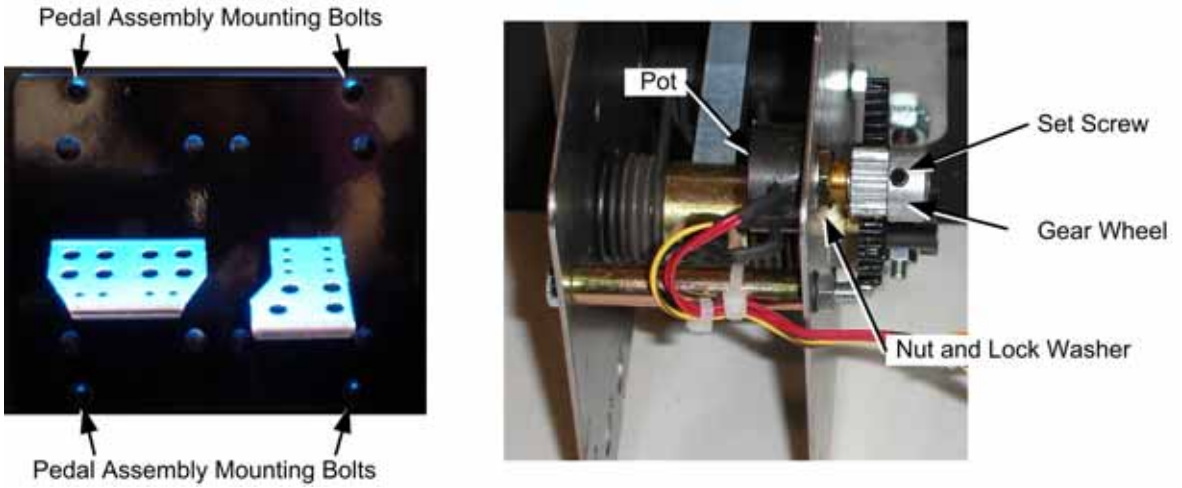

Figure 20. Pedal Assembly Details

5 KΩ Gas and Brake Pot (Potentiometer) Replacement

To test a pot, use the **Diagnostics: Play Control Test** screen in the Operator Menu (see page 26). When you press and release the pedals, you should see a steady increase or decrease in the numbers displayed onscreen, with no jumps.

You can also power off the game and test resistance at the pot. When you press and release the pedals, you should see a steady linear increase or decrease in resistance, with no jumps.

To replace a pot, refer to Figure 20 and perform the following steps:

1. Remove the pedals from the cabinet as described in the previous section.
2. Using a 7/64 Allen wrench, loosen the set screw from the gear wheel and remove the gear wheel, as shown in Figure 20.
3. Using a 1/2" wrench, remove the nut and lock washer that secure the pot to the frame.
4. Install the new pot with the same orientation. Make sure that the plastic keys on the pot match with the metal.
5. Re-install the lock washer and nut, being careful not to over-tighten.
6. Re-install the gear wheel and tighten the set screw. Use Loctite to ensure the set screw is secure.
7. Calibrate the pedals from **Diagnostics: Play Control Test** in the Operator Menu after replacing the pot (see page 26).

Four-Speed Shifter Service

Perform the following steps to remove the shifter for replacement or repair.

1. Remove the four (4) T-10H Security Torx screws from the top of the shifter assembly and carefully pull the shifter up out of the housing.
2. Disconnect the Molex connector from the shifter harness.
3. Reverse these steps to install the new shifter.
4. After service, test the shifter from **Diagnostics: Play Control Test** in the Operator Menu.

Important: Make sure no wires are pinched in the shifter housing. Pinched wires can cause incorrect gear readings.

Shifter Micro Switch Replacement

The shifter uses one mini micro switch (part #: 95-4118-00) for each gear. If the shifter is not working in one gear, check the micro switch for that gear.

1. Remove the shifter as described in the previous section.
2. Put the shifter in the gear that is not working and look at the bottom of the assembly to see which micro switch is being actuated for that gear.
3. Check for any wires that may be disconnected from the micro switch in case this is the problem.
4. To replace the micro switch, remove the four (4) screws that secure the bottom plate to the shifter and remove the plate. Be careful not to lose the spacers between the plate and the shifter.
5. Disconnect the wires from the old micro switch and install them to the same terminals on the new micro switch.

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6. Remove the two screws that secure the old micro switch to the assembly and install the new micro switch.
7. Reverse these steps to assemble and install the shifter.
8. After service, test the shifter from **Diagnostics: Play Control Test** in the Operator Menu.

GVRI/O Mini PCB Service

The GVRI/O MINI PCB relays signals between the system computer and all controls except for the steering. Each connector on the GVRI/O MINI PCB is keyed to fit only to the correct harness connector. Refer to the picture below to locate the connectors on the PCB. See Figure 40 on page 71 for detailed wiring information.

The GVRI/O MINI PCB should always be connected to a PCI USB port, **not** a motherboard USB port, to minimize the possibility of static shock.

Jumpers must be placed in positions **1** and **3** of **J5 – Mode Select** (Car Controller Mode).

CAUTION: Disconnect the cabinet from AC power before changing any connections to the GVRI/O MINI PCB.

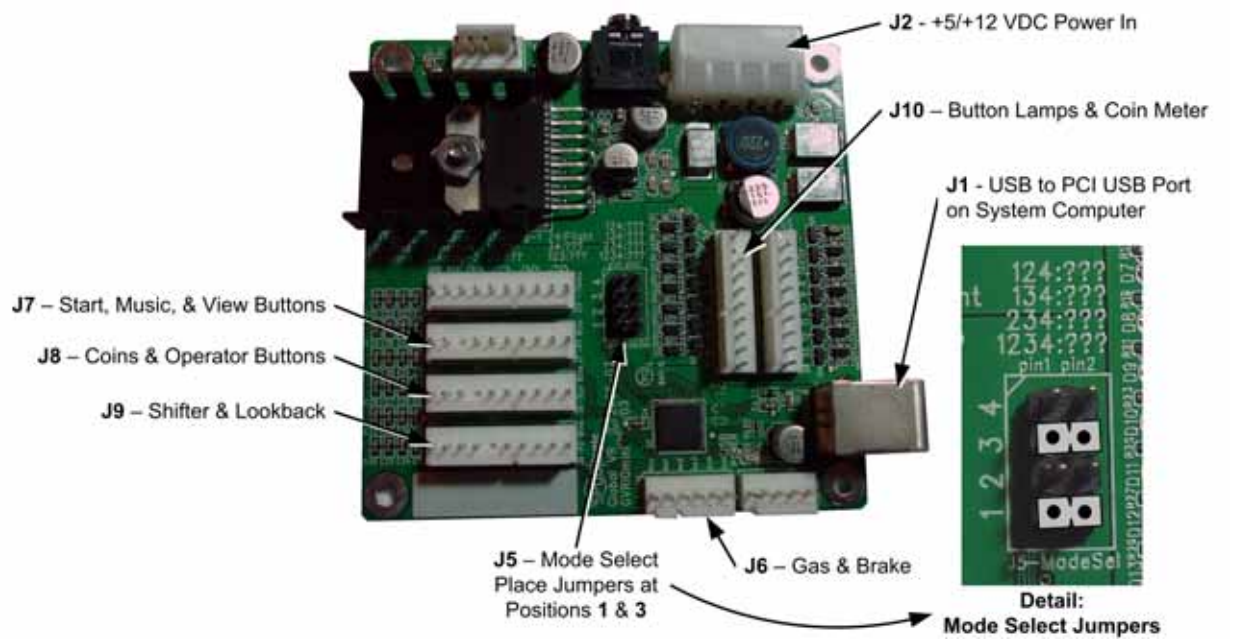
J2 - +5/+12 VDC Power In
J10 – Button Lamps & Coin Meter
J1 - USB to PCI USB Port on System Computer
J7 – Start, Music, & View Buttons
J8 – Coins & Operator Buttons
J9 – Shifter & Lookback
J5 – Mode Select Place Jumpers at Positions 1 & 3
J6 – Gas & Brake
Detail: Mode Select Jumpers

Figure 21. GVRI/O Mini PCB

Perform the following steps to replace the GVRI/O Mini PCB:

CAUTION: To prevent electrostatic discharge (ESD) damage, handle PCBs by the edges only and use a grounding wrist strap or similar precaution.

1. Disconnect the cabinet AC Power Cord.
2. Remove the electronics access panel (see page 30).
3. Make sure that all wire harnesses are labeled for ease of reconnection, and then disconnect them from the PCB.
4. Remove the four screws that secure the PCB to the mounting feet.

5. Check the new PCB and make sure jumpers are installed in positions **1** and **3** of **J5 – Mode Select**. The controls will not work properly if the jumpers are not installed.
6. Reverse these steps to install the new PCB.

Seat Slide Assembly Replacement

To replace the slide assembly, refer to Figure 22 and perform the following steps:

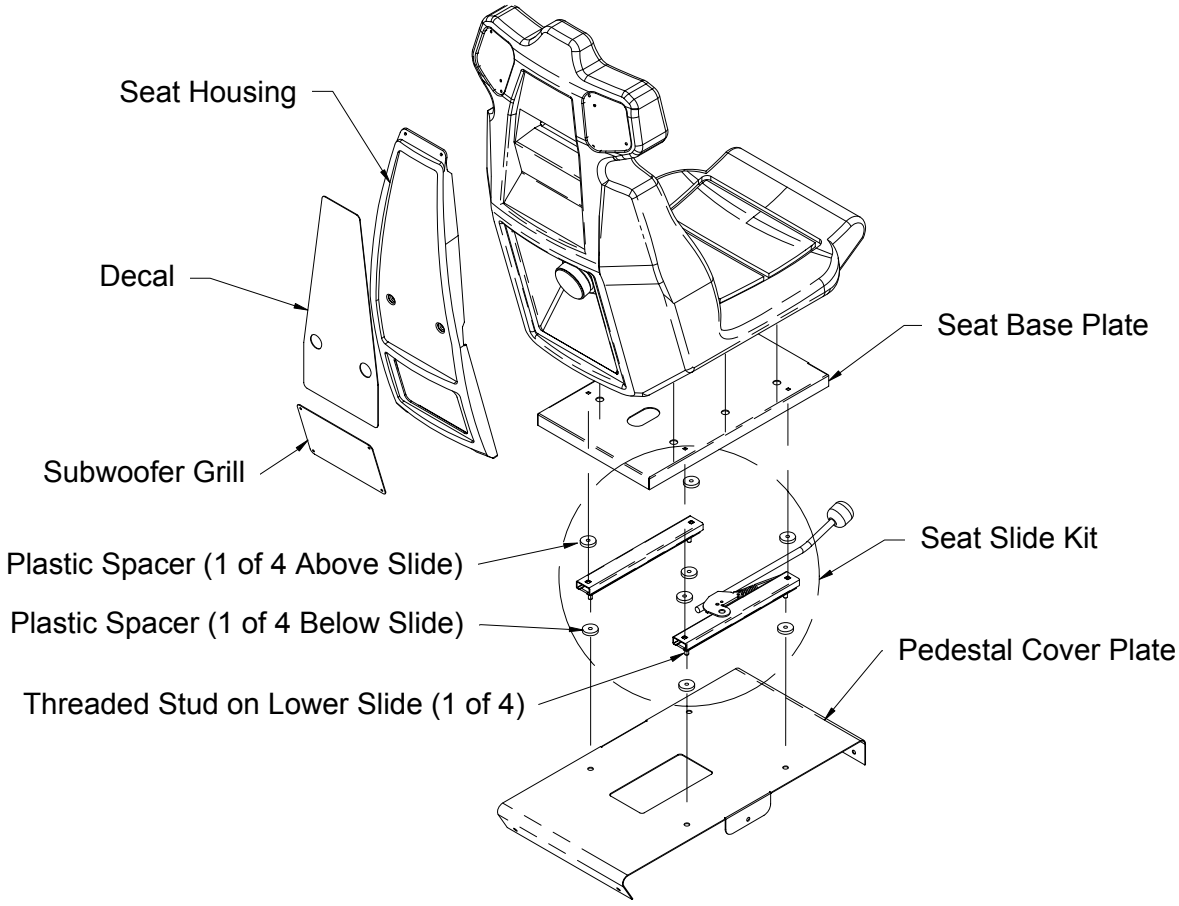
Seat Housing
Decal
Subwoofer Grill
Seat Base Plate
Seat Slide Kit
Plastic Spacer (1 of 4 Above Slide)
Plastic Spacer (1 of 4 Below Slide)
Threaded Stud on Lower Slide (1 of 4)
Pedestal Cover Plate

Figure 22. Seat Slide Assembly Replacement

1. Remove the six (6) Torx bolts that secure the pedestal cover plate to the wooden pedestal.
2. Carefully lift the seat assembly and place it on its side. Be careful not to pull the speaker wires that run from the pedestal into the seat. You may need to reach inside the pedestal and snip wire ties to create slack in the wires.
3. Remove the four (4) nuts and flat washers from the bottom of the pedestal cover plate and remove the cover plate, and the four (4) plastic spacers from the seat assembly. Note the placement of each component.
4. Remove the four (4) nuts and flat washers that secure the slide assembly to the seat base plate. Move the lower slides to each side to access all four nuts.

   Note: When reassembling, be careful to install the four (4) plastic spacers above and below the slide assembly. A missing spacer will cause the seat to wobble and may cause damage. If necessary, flat washers stacked to equal the thickness of the spacer can be used to replace a lost spacer.

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5. Reverse these steps to re-assemble the seat. Use the following specs when tightening the nuts to prevent the seat from gradually becoming loose due to motion during gameplay:

   - Seat Base Plate to Slide Assembly: Either replace the ¼-20 flange nuts with ¼ Nylock nuts, **or** apply Loctite 242® Threadlocker Blue (or a comparable product) to the threads. Tighten the nuts to 4–6 ft lbs (48–72 in lbs).
   - Pedestal Cover Plate to Slide Assembly: Either replace the 5/16-18 flange nuts with 5/16 Nylock nuts, **or** apply Loctite 242 Threadlocker Blue (or a comparable product) to the threads. Tighten the nuts to 9–12 ft lbs (108–144 in lbs).

   Important: Loctite can damage plastics. Be careful not to get the Loctite on the plastic seat, and **do not** use Loctite with Nylock nuts.

Audio Amp and Speakers Service

The Audio Amp supports 6-channel 5.1 Surround Sound. The Audio Amp is powered by the +5/+12 volt DC power supply through a standard PC power connector.

The volume level for each channel on the Audio Amp can be manually adjusted using a small screwdriver to turn the pots, shown in Figure 23. For the subwoofer channel, turn the pot clockwise all the way for maximum volume. For the other channels, turn the pot counterclockwise to turn the volume levels all the way down, and then turn the pot 1/5 of a turn clockwise to bring the volume levels up. Fine-tune the sound levels for your location from this point.

Use the **Diagnostics: Sound Test** screen in the Operator Menu to test the speakers.

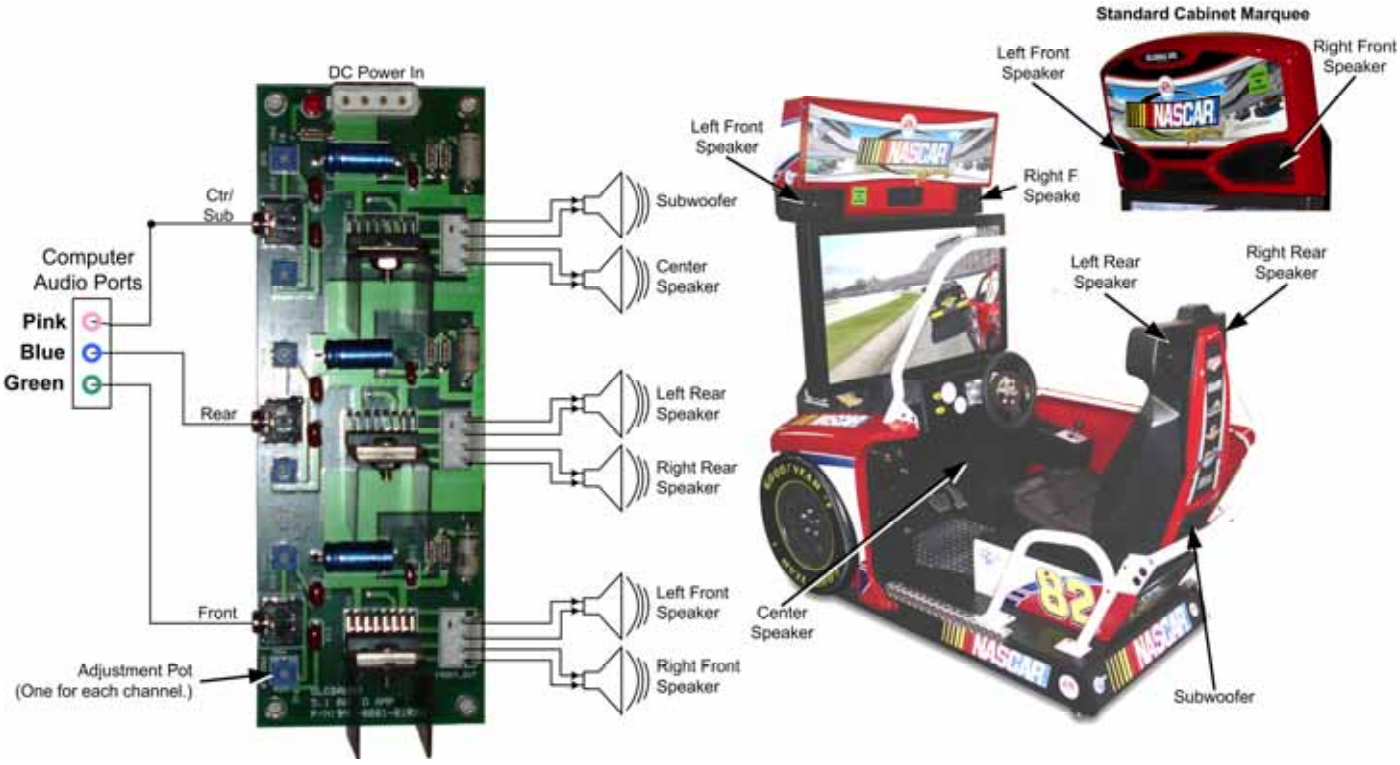

Figure 23. Audio Amp and Speakers

Three 3.5 mm stereo audio cables connect the computer audio ports to the audio amp. Each audio port on the computer is color coded to help identify the channel. See Figure 41 on page 72 for a diagram of the computer audio ports.

- The **green** audio port is for front speakers, left and right.
- The **blue** audio port is for rear speakers, left and right.
- The **pink** audio port is for center channel and bass speaker (subwoofer).

Each speaker is connected to the corresponding speaker output on the audio amp. Figure 23 on page 38 shows the location of each speaker.

Audio Amp PCB Replacement

CAUTION: To prevent electrostatic discharge (ESD) damage, handle PCBs by the edges only and use a grounding wrist strap or similar precaution.

1. Disconnect the cabinet AC Power Cord.
2. Remove the electronics access panel (see page 30).
3. Disconnect the power harness, speaker wires, and 3.5mm audio cables from the audio amp PCB. Make sure all connectors are labeled to make it easy to reconnect them properly.
4. Use a small Phillips screwdriver to remove the four (4) screws holding the PCB to the mounting feet.

   Note: Always keep the audio amp PCB inside an ESD anti-static bag when not installed in the cabinet to prevent electrostatic damage.
5. Reverse these steps to re-install the audio amp PCB.

Front (Marquee) Speaker Replacement (Deluxe)

Refer to Figure 30 on page 50 for an exploded view of the marquee and speakers. The front speakers are mounted below the marquee. Do the following to replace a speaker:

1. Remove the ten (10) Torx screws that secure the marquee artwork and clear plastic in place. Carefully tilt the clear plastic piece outward enough to disconnect the leader light connector, and then remove the clear plastic with the leader light assembly and artwork.
2. Disconnect the speaker harness connector inside the marquee. (If there is no connector here, you must remove the speaker and mounting box before you can disconnect the speaker wires.)
3. Remove the nuts from the two (2) speaker mounting bolts and remove the speaker with its mounting bracket. Be careful not to pull the speaker wires.
4. Remove the screws that secure the mounting bracket to the speaker.
5. Remove the wires from the speaker and install them to the same connectors on the new speaker.
6. Reverse these steps to install the new speaker.

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Front (Marquee) Speaker Replacement (Standard)

The front speakers are located behind the grills on each side of the marquee. Do the following to replace a front speaker:

1. Remove the eight (8) Torx screws that secure the marquee artwork and clear plastic in place and remove the artwork and plastic.
2. Inside the marquee, remove the bolts that secure the plastic marquee housing in place.
3. Remove the four (4) screws that secure the speaker to the cabinet.
4. Remove the wires from the speaker and install them to the same connectors on the new speaker.
5. Reverse these steps to re-install the speaker.

Center Speaker Replacement

The center speaker is located near the pedals on the right side wall. Do the following to replace the center speaker:

1. Remove the four (4) Torx security screws that secure the speaker grill in place.
2. Remove the four (4) Phillips screws that secure the speaker in place.
3. Remove the wires from the speaker and install them to the same terminals of the new speaker.
4. Reverse these steps to install the new speaker.

Rear (Seat) Speaker or Subwoofer Replacement

The rear speakers are located behind the two small grills at the top rear of the seat. On Deluxe cabinets, the subwoofer is located behind the molded red plastic housing on the back of the seat. On Standard cabinets, the subwoofer is located behind the grill on the back of the seat, .

1. **To replace the Subwoofer**, remove the six (6) Torx screws that secure the molded red plastic housing on the back of the seat, and remove the housing. Skip to step 3.
2. **To replace the left or right rear speaker**, remove the four (4) 1/4-20H Torx security screws that secure the speaker grill to the back of the seat.
3. Remove the four (4) screws that secure the speaker or subwoofer to the seat.
4. Remove the wires from the speaker or subwoofer and install them to the same terminals on the new speaker or subwoofer.
5. Reverse these steps to install the new speaker or subwoofer.

Computer Replacement

CAUTION: The computer is serviced as one unit. YOU WILL VOID YOUR WARRANTY if you open the computer without direct authorization from the GLOBAL VR Technical Support staff.

Perform the following steps to remove the computer from the cabinet:

1. Disconnect the cabinet from AC power and remove the rear door from the cabinet.
2. Disconnect all of the cables from the computer.
3. Remove the Game Dongle and keep it with your cabinet. **Do not** ship the Game Dongle with the computer. It contains information that needs to stay with the cabinet.

4. Unbuckle the strap that secures the computer in place and remove the computer.
5. Reverse these steps to install the new computer. Make sure that the computer air vents are not blocked. There is an air vent under the bottom front panel of the computer that is easily blocked by padding or debris. Be sure to reconnect your Game Dongle.
6. After replacing a computer, you must calibrate the pedals (see page 26).
7. Set up your cabinet from the Operator Menu, and play a game to verify proper operation.

CAUTION: When shipping the computer, always use plenty of padding and protection. GLOBAL VR recommends shipping the computer in a box with three inches of foam padding on all sides. Shipping the computer without enough padding can VOID THE WARRANTY if the computer is visibly damaged from shipping.

LCD Monitor Assembly Service (Deluxe)

The 42" LCD Monitor is connected to an LCD Control PCB that provides the signal, power, and data to the monitor. The monitor is encased in a metal bezel and backbox assembly with a glass display shield to protect the LCD panel. The Control PCB is mounted to the backbox inside the cabinet. Power is provided by a dedicated 24 VDC power supply that connects to the Control PCB and the AC power strip. The sections that follow provide replacement procedures for LCD Monitor Assembly components. Figure 24 shows an exploded view of monitor assembly.

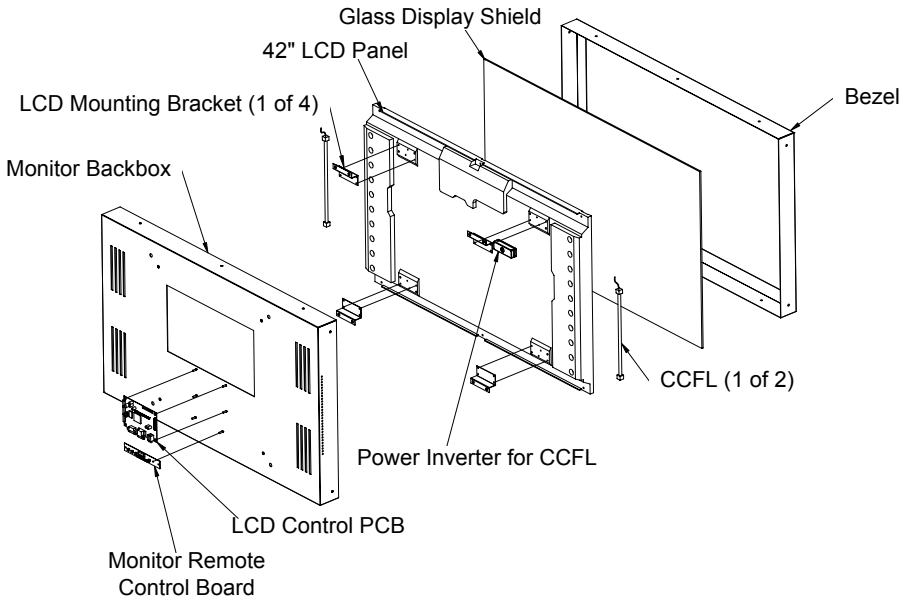

Figure 24. Monitor Assembly Exploded View (Deluxe)

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Glass Display Shield Replacement (Deluxe)

Perform the following steps if you need to remove the glass display shield for cleaning or replacement:

1. Remove the five (5) screws, shown by the arrows in the picture below, from the LCD front cover bracket below the front of the monitor and remove the bracket.

Figure 25. LCD Front Cover Bracket

2. Remove the seven (7) screws that secure the bezel in place around the front of the monitor.
3. Carefully lift the bezel and glass away from the monitor.
4. Reverse these steps to replace the bezel and glass.

Monitor Replacement (Deluxe)

SHOCK HAZARD. Disconnect the AC power cord before performing the following procedure.

1. Disconnect the cabinet from AC power.
2. Refer to Figure 25 and remove the five (5) screws from the LCD front cover bracket below the front of the monitor. Remove the bracket.
3. Remove the Monitor Access Door behind the monitor.
4. Disconnect the video cable from the back of the LCD Control PCB.
5. Disconnect the monitor DC power wires from the monitor power supply terminals (you *do not* need to disconnect the AC wires from the power strip).
6. Remove the two (2) Phillips screws that secure the DC power supply in place so you can move it out of the way to reach the monitor mounting bolts.

7. Remove the four (4) bolts that secure the monitor backbox to the mounting brackets inside the cabinet. The picture below shows the locations of the bolts inside the cabinet

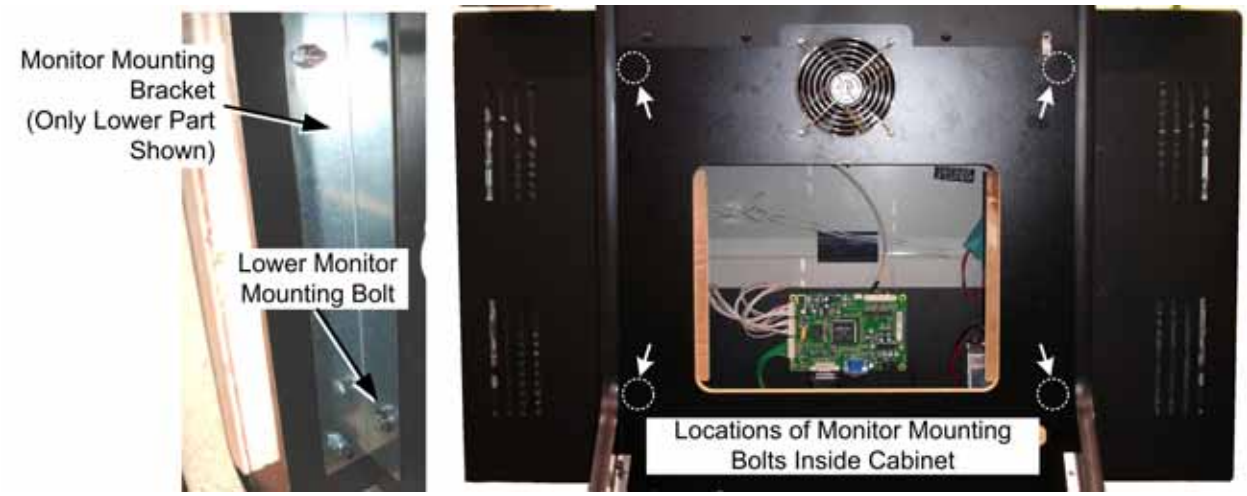
Monitor Mounting Bracket (Only Lower Part Shown)
Lower Monitor Mounting Bolt
Locations of Monitor Mounting Bolts Inside Cabinet

Figure 26. Monitor Mounting Bolts (Deluxe)

8. Carefully lift the monitor, bezel, and glass out of the cabinet as one unit. This is easiest to do with a person on each side of the assembly.
9. Place the LCD monitor assembly face down on a safe working surface.
10. Refer to Figure 27 for monitor assembly components. Carefully disconnect the three wire harnesses that connect the LCD panel to the LCD Control PCB on the back of the assembly.

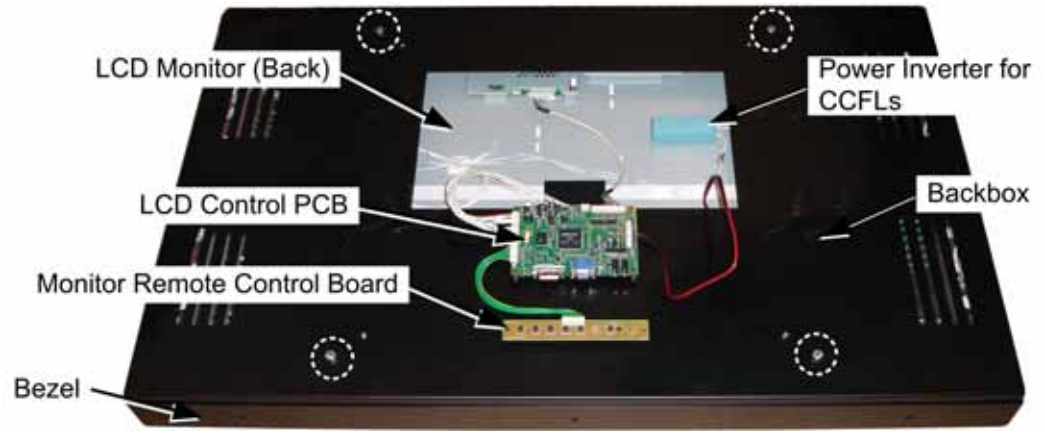

Figure 27. Monitor and Backbox Components (Deluxe)

11. Remove the seven (7) screws that secure the bezel in place around the front of the monitor.
12. Remove the four (4) bolts from the back of the backbox (shown by the circles in Figure 27) and lift off the backbox with the attached LCD Control PCB.
13. Lift the LCD panel out of the bezel.
14. Reverse these steps to install the new monitor.

Note: If the monitor does not work, make sure the three harnesses between the control PCB and LCD panel are connected properly. Also check the DVI video cable and power connection.

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Monitor Control PCB Replacement (Deluxe)

SHOCK HAZARD. Disconnect the AC power cord before performing the following procedure.

CAUTION: To prevent electrostatic discharge (ESD) damage, handle PCBs by the edges only and use a grounding wrist strap or similar precaution.

1. Disconnect the cabinet from AC power.
2. Remove the Monitor Access Door behind the monitor.
3. Refer to Figure 27 to identify monitor assembly components. Carefully disconnect all of the cables and wire harnesses from the Control PCB. (Depending on the PCB model, you may need to remove the PCB from the backbox before you can disconnect the power harness.)
4. Remove the four (4) screws that secure the PCB to the monitor backbox and remove the PCB.
5. Reverse these steps to install the new PCB.

Note: If the monitor does not work, make sure the three harnesses between the control PCB and LCD panel are connected properly. Also check the DVI video cable and power connection.

Monitor Power Supply Replacement (Deluxe)

SHOCK HAZARD. Disconnect the AC power cord before performing the following procedure.

1. Disconnect the cabinet from AC power.
2. Remove the Monitor Access Door behind the monitor.
3. Make sure all wires connected to the power supply are properly labeled for easy reconnection, and then disconnect them from the terminals.
4. Remove the two (2) screws that secure the power supply mounting bracket to the cabinet and remove the power supply from the cabinet.
5. Remove the mounting bracket from the power supply and install it on the new power supply.
6. Reverse the removal steps to install the new power supply.

Note: If the monitor does not work, verify the power supply is putting out +24 VDC.

Monitor Service (Standard)

The 32" LCD Monitor is connected to an LCD Control PCB that provides the signal, power, and data to the monitor. The monitor is encased in a metal frame with a glass display shield to protect the LCD panel. The LCD Control PCB and Monitor Power Supply are mounted to the back of the LCD assembly. The Monitor Power Supply connects to the AC Power Strip. The sections that follow provide replacement procedures for components of the LCD Monitor Assembly.

Monitor Display Shield Replacement (Standard)

1. Disconnect the cabinet from AC power.
2. Remove the screws from the sides of the monitor frame.
3. Carefully remove the frame and glass. Be aware that the glass is **not** secured to the frame.
4. Reverse these steps to install the new glass display shield.

Monitor Replacement (Standard)

SHOCK HAZARD. Disconnect the AC power cord before performing the following procedure.

CAUTION: To prevent electrostatic discharge (ESD) damage, handle PCBs by the edges only and use a grounding wrist strap or similar precaution.

1. Remove the Display Shield and Frame as described in the previous section.
2. Remove the Monitor Access Door behind the monitor.
3. Disconnect the video cable from the back of the LCD Control PCB.
4. Check the power cord that connects to the power supply on the back of the monitor. Make sure it has enough slack so you can move the monitor out to disconnect the wires from the terminals. If necessary, snip some cable ties to create enough slack in the power cord.
5. Remove the four (4) bolts that secure the monitor L-brackets to the cabinet and carefully lay the monitor down above the control panel so you can access the power supply terminals.
6. Disconnect the wires from the power supply terminals, making sure they are labeled for proper reconnection.
7. Place the LCD panel on a work surface and carefully disconnect the wire harnesses from the LCD Control PCB and Power Supply.
8. Remove the L-Brackets, LCD Control PCB, and Power Supply, and install them on the new monitor.
9. Carefully reconnect the harnesses between the LCD panel and the LCD Control PCB and Power Supply.
10. Reverse the removal steps to install the new monitor.

Note: If the monitor does not work, make sure the harnesses between the control PCB and LCD panel are connected properly. Also check the DVI video cable and power connection.

Monitor Control PCB Replacement (Standard)

Perform the steps under *Monitor Replacement (Standard)*, above, but remove and replace only the LCD Control PCB from the monitor assembly.

Note: If the monitor does not work, make sure the harnesses between the control PCB and LCD panel are connected properly. Also check the DVI video cable and power connection.

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Monitor Power Supply Replacement (Standard)

Perform the steps under *Monitor Replacement (Standard)*, above, but remove and replace only the Monitor Power Supply from the monitor assembly.

Coin Mech Replacement

Perform the following steps to remove a coin mech. You can replace a coin mech with any standard arcade coin mech.

1. Unscrew the thumbscrews on the latches as shown by the arrows in step 1 of the figure below.
2. Slide the latches apart from each other and remove the Coin Mech as shown in steps 2 and 3.
3. Reverse these steps to re-install a coin mech. It is important to verify the operation of the newly installed coin mech with both good and bad coins.

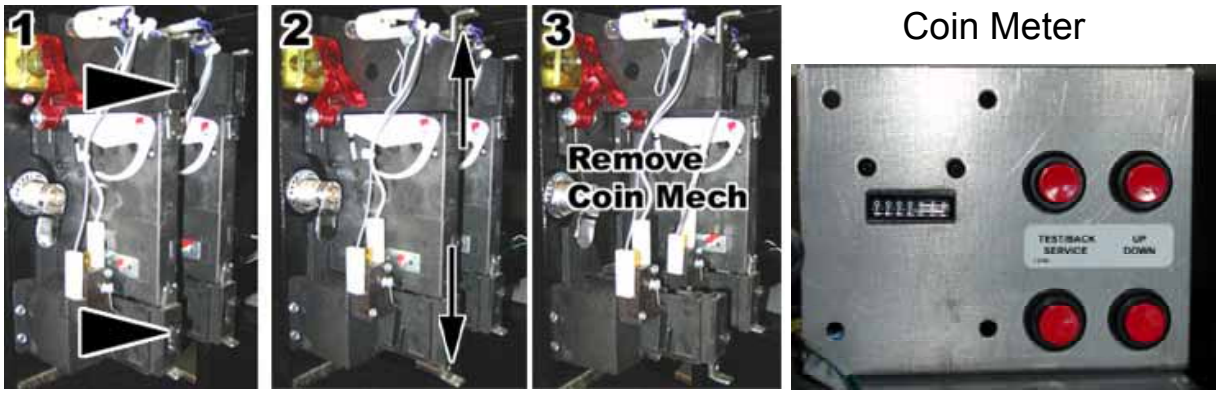

Figure 28. Servicing the Coin Mech and Coin Meter

Coin Meter Replacement

The coin meter is mounted to the operator button panel. Perform the following steps to remove the coin meter:

1. Turn the cabinet OFF and disconnect the AC power cord.
2. Remove the two Phillips screws holding the coin meter to the operator button panel and remove the coin meter.
3. Cut the two wires from the coin meter and strip the ends of the wires to attach the new meter.
4. Use two butt splices to connect the wires to the new coin meter.
5. Use the two screws to install the new coin meter.

Power Distribution Service

AC Power Plate

The AC power plate on the back of the cabinet provides the external AC power connection. An AC EMI Filter in the power plate removes electrical noise that can cause interference with the hardware inside the cabinet. The power plate has an ON/OFF switch and a 6 Amp Slo Blo fuse.

AC power from the power plate is routed through a power transformer to an AC power strip/surge suppressor that provides power to all cabinet components.

CAUTION: The cabinet must be connected to a secure ground to function properly.

Ground wires from system components must be securely connected to the ground lug on the power plate, as shown in Figure 29. Components must **not** be grounded to the power plate mounting bolts.

The **Ethernet** port on the power plate is connected to the Ethernet port on the system computer. It is used for linking cabinets.

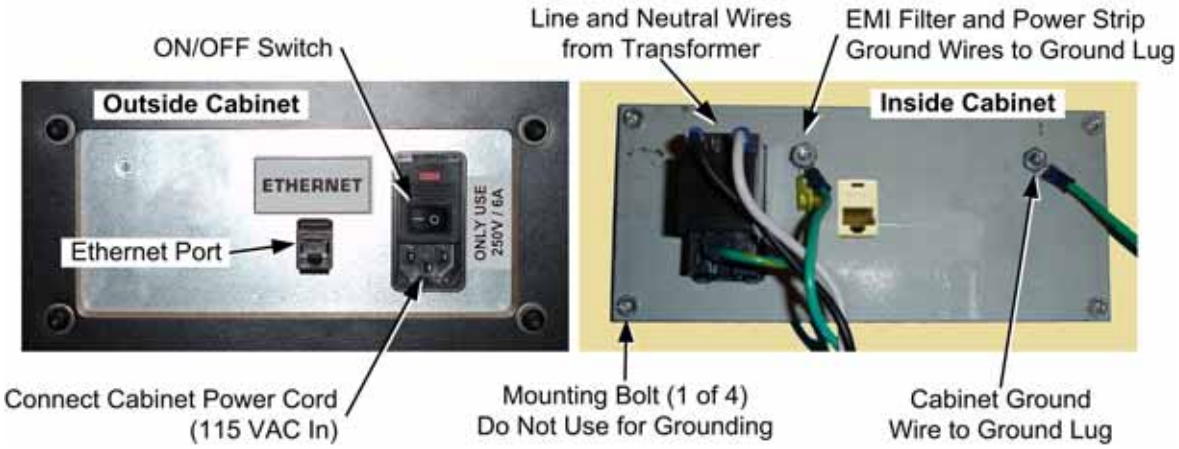
ON/OFF Switch
Line and Neutral Wires from Transformer
EMI Filter and Power Strip Ground Wires to Ground Lug
Outside Cabinet
Inside Cabinet
ETHERNET
Ethernet Port
ONLY USE 250V / 6A
Connect Cabinet Power Cord (115 VAC In)
Mounting Bolt (1 of 4) Do Not Use for Grounding
Cabinet Ground Wire to Ground Lug

Figure 29. AC Power Plate

AC Power Strip Replacement

SHOCK HAZARD. Disconnect the AC power cord before performing the following procedure.

The AC power strip provides power to all of the components in the cabinet. Perform the following steps to replace the power strip:

1. Turn the cabinet OFF and disconnect the AC power cord.
2. Remove the rear door from the cabinet.
3. Disconnect all components from the power strip.
4. Disconnect the power strip Neutral and Line wires from the power transformer.
5. Disconnect the power strip Ground wire from the AC Power Plate ground lug.
6. Remove the power strip; it is held in place with Velcro®.

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7. Replace the power strip with an appropriate unit from GLOBAL VR®. Do not use a different power strip. Be sure to connect each wire to the correct terminal. (See Figure 38 on page 69.)

CAUTION: Be sure to connect each wire to the correct terminal. The ground wire must be securely connected to the ground lug on the power plate or the game will not function properly.

DC Power Supplies (+24 and +5/+12 VDC)

The cabinet has three DC power supplies (*NOT* including the power supply inside the computer).

- +24 VDC supply powers the Force-Feedback Steering System.

  Important: Connect **only** the steering components to this +24 VDC Power Supply. **Do not use** the +12 VDC Terminals on the Steering Power Supply.

- +5/+12 VDC supply powers the Audio Amp, GVRI/O Mini PCB, and lighting components.
- +24 VDC supply powers LCD monitor. See *Monitor Power Supply Replacement* on page 44 for replacement procedures.

Perform the following steps to replace a DC power supply (except for the monitor power supply):

SHOCK HAZARD. Disconnect the AC power cord before performing the following procedure.

If a power cord is damaged, it must be replaced by the equivalent power cord available from GLOBAL VR or your distributor.

1. Turn the cabinet OFF and disconnect the AC power cord.
2. Remove the electronics access panel (see page 30).
3. Disconnect the wires from the DC power supply terminals.
4. Remove the two (2) Phillips screws holding the power supply to the cabinet. Be careful not to remove the screw that secures the terminal plate to the DC power supply.
5. Reverse the removal steps to install the new power supply. Check the labels on each wire and be sure to connect them to the correct terminals. See Figure 38 on page 69 for connection details.
6. Before connecting the DC output wires, connect a volt meter and adjust the output voltage from the pot on the front of the power supply as follows:
   - **+5/+12 VDC power supply**: Set the +5VDC output between +5.05 and +5.1 VDC.
   - **+24 VDC power supply**: Set the +24 VDC output to +24 VDC.

Leader Light & Speaker Lights Service (Deluxe)

The cabinet uses red LED light tubes for the Leader Light, and to add a red glow around the front speakers. All three of these lights are located inside the marquee. Refer to Figure 30 for an exploded view of the marquee assembly, and do the following to change an LED light tube:

1. Remove the ten (10) Torx screws that secure the marquee artwork and clear plastic in place. Carefully tilt the clear plastic piece outward enough to disconnect the leader light connector, and then remove the clear plastic with the Leader Light Assembly and artwork.
2. Remove the four (4) Torx screws that secure the Leader Light Assembly in place.
3. Snip the cable ties that secure the light tube to the assembly.
4. Reverse these steps to install the new light tube.

Leader Light Replacement (Standard)

1. Remove the four (4) Torx screws that secure the LEADER grill in place and remove the grill.
2. Snip the cable ties that secure the LED light tube to the cabinet.
3. Disconnect the power connector from the power harness and remove the light from the cabinet.
4. Reverse these steps to install the new Leader Light.

Marquee Florescent Light Service (Deluxe)

Refer to Figure 30. The Marquee is lighted by two 18" florescent fixtures. To replace only a florescent tube, perform the first two steps below and then replace the tube.

Do the following to replace a florescent fixture:

1. Disconnect the cabinet from AC power.
2. Remove the ten (10) Torx screws that secure the marquee artwork and clear plastic in place. Carefully tilt the clear plastic piece outward enough to disconnect the leader light connector, and then remove the clear plastic with the leader light assembly and artwork.
3. Disconnect the AC power connector that connects the fixture to the main harness.
4. Remove the two Phillips screws that secure the fixture to the cabinet and remove the fixture.
5. Reverse these steps to install the new fixture. Replace the fixture only with a comparable unit from GLOBAL VR.

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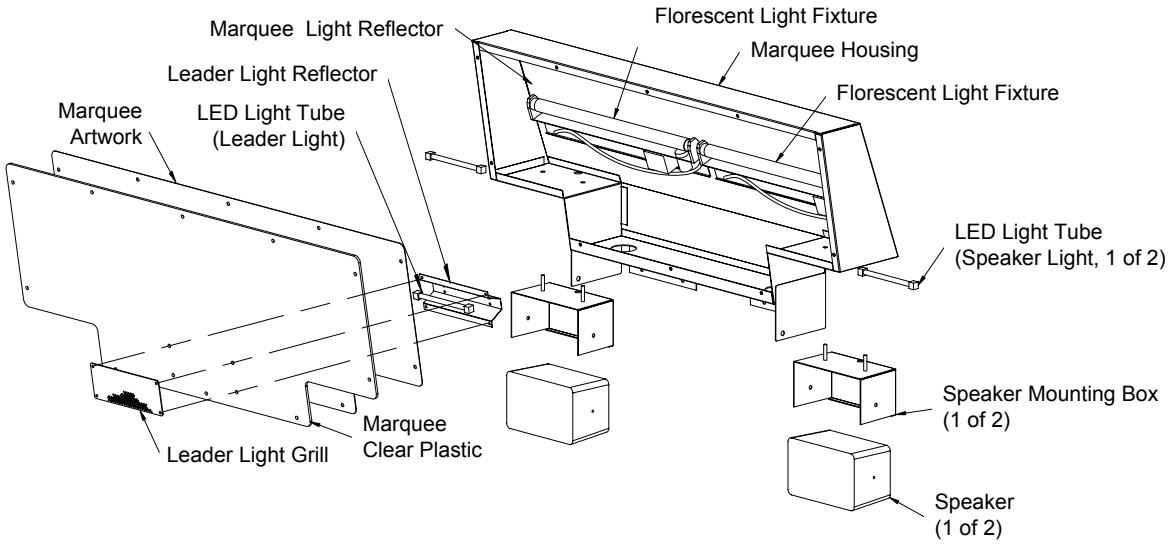

Figure 30. Marquee Assembly Exploded View

Marquee Florescent Light Service (Standard)

The Marquee is lighted by one florescent fixture.

1. To gain access to the fixture, remove the eight (8) Torx screws that secure the marquee artwork and clear plastic in place.
2. Replace the florescent tube with another 18" florescent tube.
3. To remove the fixture, disconnect the cabinet from AC power and perform the steps that follow.
4. Disconnect the AC power cord from the fixture.
5. Remove the two Phillips screws that secure the fixture to the cabinet and remove the fixture.
6. Reverse these steps to install the new fixture. Replace the fixture only with a comparable unit from GLOBAL VR.

Cold-Cathode Florescent Light Service

Cold-Cathode Florescent Lights (CCFLs) are used to add dramatic lighting effects to the cabinet. 12" red CCFLs are installed below the control panel and under the back of the cabinet. Deluxe cabinets have an additional 12" red CCFL on each side of the monitor.

Each CCFL set is made up of two light tubes and a power inverter. The power inverter is connected to +12 VDC power (see Figure 31). If both of the lights in a set fail, the problem is most likely a faulty power inverter or loose power connection. Make sure the power connector is firmly attached to the power inverter. Swap the power inverter with a known good inverter as a test before changing the light tubes.

If you replace an inverter, and the replacement set has a power switch, make sure it is switched ON. Install the inverter it so that the vents (the circle of small holes) on the case are not covered.

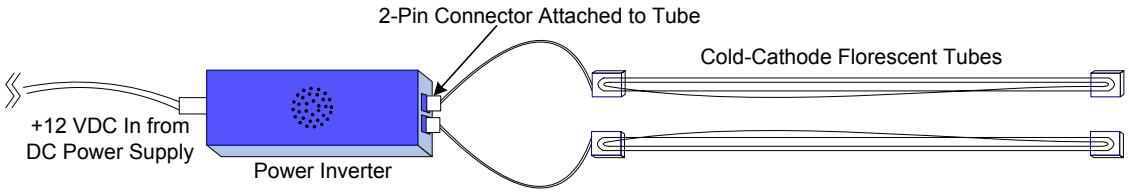

Figure 31. Cold-Cathode Light Detail

CCFLs at Sides of Monitor (Deluxe)

To check the power inverter, remove the Monitor Access Door. The inverter is secured to the back of the monitor.

To change a light tube you must remove the LCD monitor from the cabinet and remove the backbox from the monitor, as described on page 42. The CCFLs are secured to the back of the monitor assembly with cable ties. These CCFLs have extended wire harnesses to reach the sides of the monitor. Be sure to order replacement part number CCFL2R-EXT.

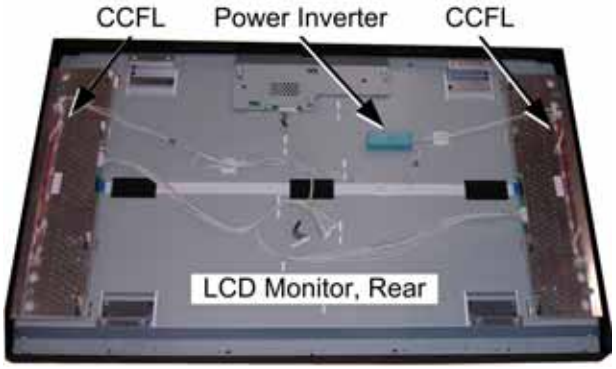

Figure 32. Monitor with Backbox Removed

CCFLs Below Control Panel

To check the power inverter, remove the electronics access panel (see page 30); the inverter should be located in the area above the light tubes, and secured in place with Velcro.

To replace a light tube, remove the four (4) Torx screws that secure the clear plastic panel with the lights under the control panel. The light tubes are secured to the plastic panel with cable ties.

CCFLs at Cabinet Rear

The power inverter is located inside the seat pedestal. If you need to change a light tube, you will have to remove the seat to disconnect the light from the inverter.

1. To access the power inverter, remove the six (6) Torx bolts that secure the seat pedestal cover plate to the wooden pedestal, and carefully move the seat enough to reach inside.
2. If you need to replace a light tube, disconnect the light from the power inverter.
3. Remove the four (4) Torx screws that secure the clear plastic panel with the lights under the cabinet. The light tubes are secured to the plastic panel with cable ties.

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Roll Bar Pad Replacement (Deluxe)

Perform the following steps to replace the roll bar pad cover and/or pad.

1. Snip the cable ties that secure the roll bar pad to the roll bar and remove the pad.
2. Refer to the picture below and place the cover around the pad.

Use Adhesive Strip to secure edge of fabric so Velcro Strip faces up.
Remove Adhesive Strip from one side only.
Once pad is installed on roll bar, join the two Velcro strips.
Tuck fabric ends inside pad.

3. Place the pad around the roll bar and tuck the ends of the fabric under the pad. Join the two Velcro strips on the fabric.
4. Use three (3) large cable ties to secure the pad in place. Align the clasps of the cable ties with the fabric seam. Snip the ends of the cable ties flush with the clasps. Rotate the pad so the seam will face away from the players.

Caution: The ends of the cable ties can be sharp. Make sure you cut them flush with the clasps.

Setting the Date and Time

The date and time have no effect on game play and do not show up in the game. They are displayed only on the Operator Menu screens and referenced on the Collections screens. Perform the following steps if you wish to change the date and time displayed in the Operator Menus.

1. Remove the rear door from the cabinet and connect a USB keyboard to an available USB port on the back of the system computer. (Or you can connect a PS/2 keyboard to the purple PS/2 port on the back of the computer and then reboot the game.)
2. With the game running in Attract mode, press the Windows flag key on the keyboard (between the Ctrl and Alt keys). This will launch the Windows Start Menu.
3. Use the arrow keys (↑↓) to select **gvrShutdown** from the Start Menu and press **Enter**. This will shut down the game shell and allow you to access Windows features.
4. Use the up arrow key (↑) to select **Run** from the Start Menu and then press **Enter**.
5. In the Run dialog box, type **`cmd`** and press **Enter**. A command window will appear.
6. Do the following to set the date:
   a. In the command window, type **`date`** and press **Enter**.
   b. A prompt will display the current date in the format: *weekday mm/dd//yyyy*, and will prompt you to enter the date in the format: *mm-dd-yyyy*. Enter the date, with the dashes, and then press **Enter**, or press **Back Space** to make a correction.
7. Do the following to set the time:
   a. In the command window, type **`time`** and press **Enter**.
   b. A prompt will display the current time in the format: *hh:mm:ss.tt* (where *tt* means tenths of a second), and will prompt you to enter the time in the same format.

      Use the 24-hour clock, and enter the hour and minutes, with seconds being optional. (For example, 14:23:40 for 2:23:40 PM.) Press **Enter** to set the time entered or **Back Space** to make a correction.
8. Type **exit** and press **Enter** to close the command window.
9. Disconnect the keyboard and reboot the game.

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Setting the Computer BIOS (CMOS)

This procedure applies to the Gigabyte GA-945GM-S2 and GA-945GCM(X)-S2 Motherboards. The screens for the GA-G31MX-S2 Motherboard look a little bit different, but the procedure and settings are the same.

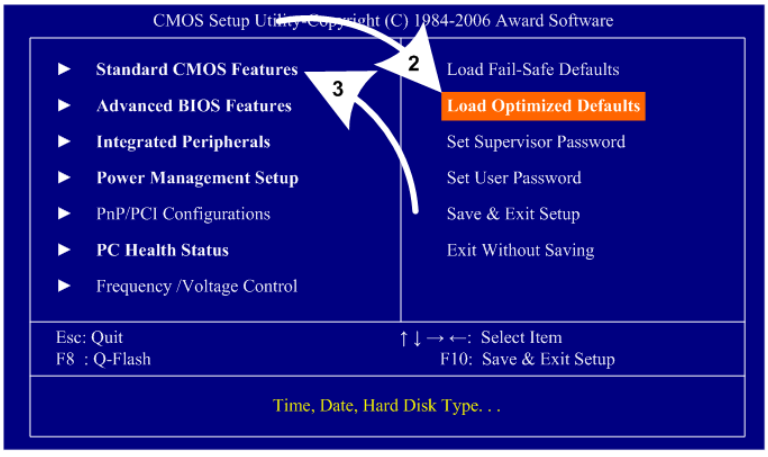
If your system has a different motherboard, check http://service.globalvr.com for updated information.

If you are comfortable using the CMOS Setup Utility, press the **DEL** key during boot to run the Utility, select **Load Optimized Defaults** from the Main Menu, and then change the settings shown in the table below. For more help, refer to the detailed instructions that follow.

Menu	Item	Setting
Standard CMOS Features	Drive A	None
	Halt On	No Errors
Advanced BIOS Features	Hard Disk Boot Priority	WDC-WD400BB-xxxxxx (Exact name will vary.)
	First Boot Device	CDROM
	Second Boot Device	Hard Disk
	Third Boot Device	Disabled
Integrated Peripherals	USB Keyboard Support	Enabled
	USB Mouse Support	Enabled
Power Management Setup	AC Back Function	Full On
PC Health Status	CPU Smart FAN Control	Disabled

Important: Your screens may not look exactly like the screens shown below, and some settings shown on the screens pictures may be different from your system.
Do not change any settings that are not specifically described in this document.

1. Press the **DEL** key during boot. The CMOS Setup Utility Main Menu will appear:
2. Use the Arrow keys (↑↓→←) to select **Load Optimized Defaults**, and press **Enter**.
   Press **Y** and **Enter** when prompted to confirm the change.
3. Use the Arrow keys to highlight **Standard CMOS Features**, and then press **Enter**.

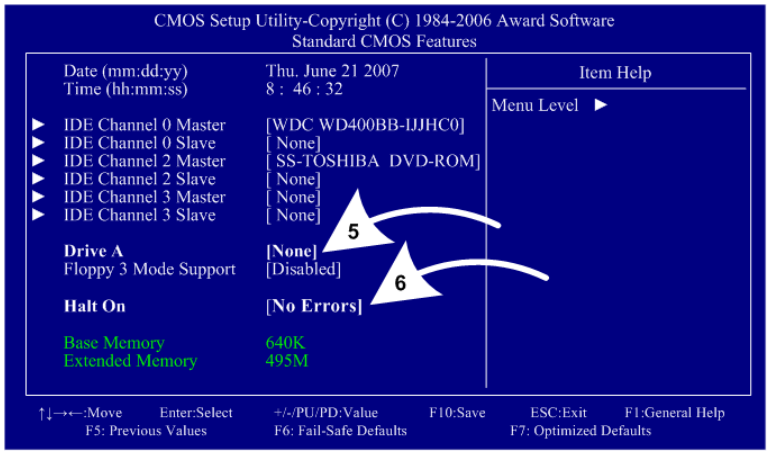


4. A screen similar to the following will appear:

5. Use the Arrow keys to highlight the setting for **Drive A** and press **Enter**. Use the **Page Up** and **Page Down** keys to change the setting to **None**.

6. Change the setting for **Halt On** to **No Errors** the same way.

   Press **ESC** to go back to the Main Menu.


CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
Standard CMOS Features
Date (mm:dd:yy) Thu. June 21 2007
Time (hh:mm:ss) 8 : 46 : 32
Item Help
Menu Level ►
IDE Channel 0 Master [WDC WD400BB-IJJHC0]
IDE Channel 0 Slave [None]
IDE Channel 2 Master [SS-TOSHIBA DVD-ROM]
IDE Channel 2 Slave [None]
IDE Channel 3 Master [None]
IDE Channel 3 Slave [None]
Drive A [None]
Floppy 3 Mode Support [Disabled]
Halt On [No Errors]
Base Memory 640K
Extended Memory 495M
5
6
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

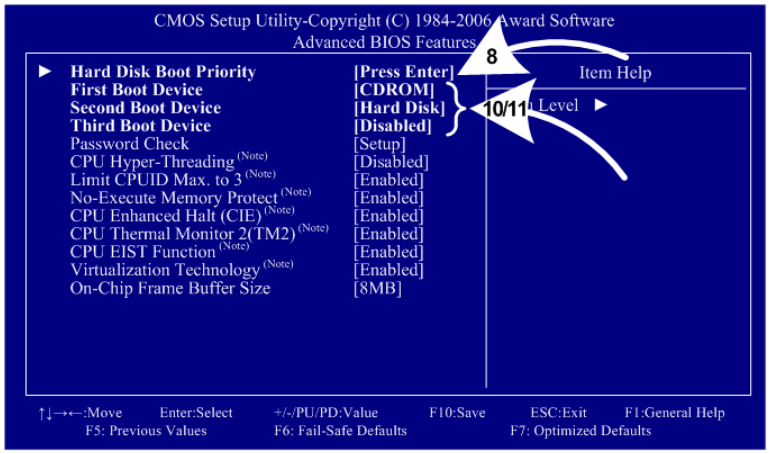
7. Now use the Arrow keys to highlight **Advanced BIOS Features** and press **Enter**. A screen similar to the following will appear:

8. Use the Arrow keys to highlight the setting for **Hard Disk Boot Priority** and press **Enter**.

9. A secondary screen will appear. The Hard Drive should already be at the top of the list (it will look something like WDC-WD400BB-xxxxxx), but if necessary, use the arrow keys to select the Hard Drive and then use the + key to move it to the top of the list.

10. Use the Arrow keys to highlight the setting for **First Boot Device** and press **Enter**.

    Use the **Page Up** and **Page Down** keys to change the setting to **DVDROM**.


CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
Advanced BIOS Features
Hard Disk Boot Priority [Press Enter]
First Boot Device [CDROM]
Second Boot Device [Hard Disk]
Third Boot Device [Disabled]
Password Check [Setup]
CPU Hyper-Threading (Note) [Disabled]
Limit CPUID Max. to 3 (Note) [Enabled]
No-Execute Memory Protect (Note) [Enabled]
CPU Enhanced Halt (CIE) (Note) [Enabled]
CPU Thermal Monitor 2(TM2) (Note) [Enabled]
CPU EIST Function (Note) [Enabled]
Virtualization Technology (Note) [Enabled]
On-Chip Frame Buffer Size [8MB]
Item Help
Menu Level ►
8
10/11
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

11. Set **Second Boot Device** to **Hard Disk** and **Third Boot Device** to **Disabled** the same way. Press **ESC** to go back to the Main Menu.

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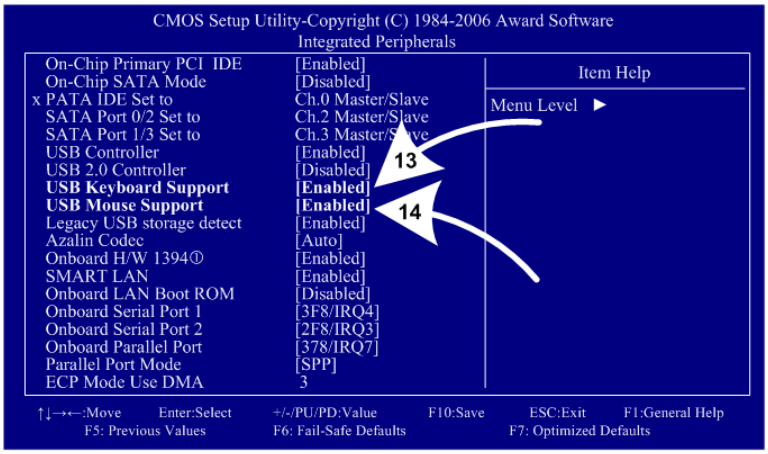
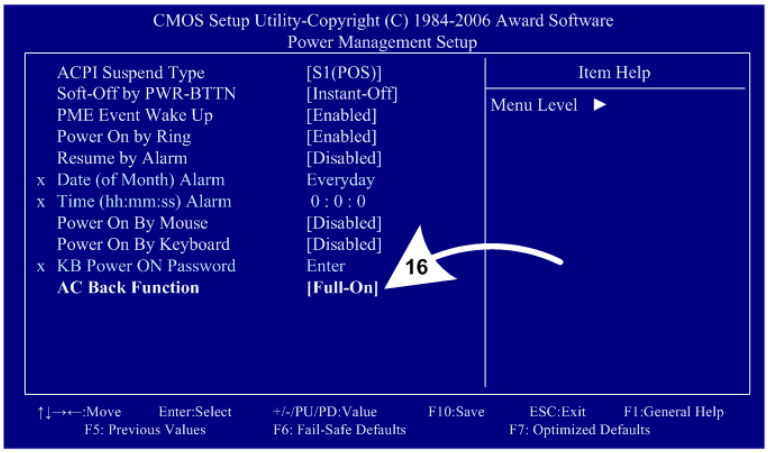
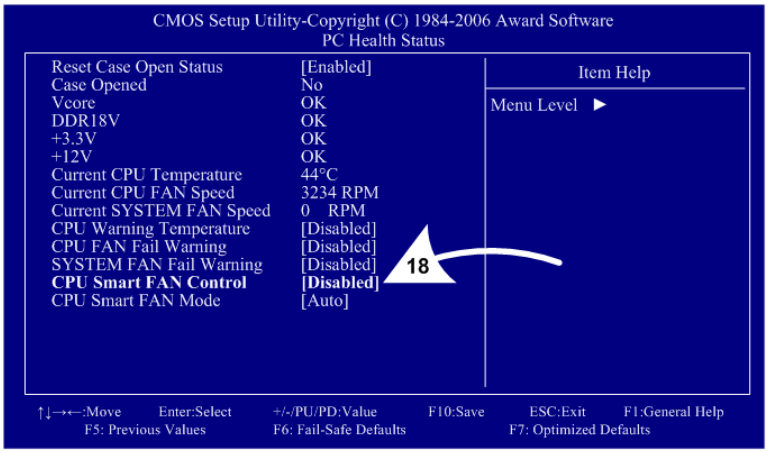
12. Now use the Arrow keys to highlight **Integrated Peripherals** and press **Enter**.
    A screen similar to the following will appear:


CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
Integrated Peripherals
On-Chip Primary PCI IDE [Enabled]
On-Chip SATA Mode [Disabled]
x PATA IDE Set to Ch.0 Master/Slave
SATA Port 0/2 Set to Ch.2 Master/Slave
SATA Port 1/3 Set to Ch.3 Master/Slave
USB Controller [Enabled]
USB 2.0 Controller [Disabled]
USB Keyboard Support [Enabled]
USB Mouse Support [Enabled]
Legacy USB storage detect [Enabled]
Azalin Codec [Auto]
Onboard H/W 1394① [Enabled]
SMART LAN [Enabled]
Onboard LAN Boot ROM [Disabled]
Onboard Serial Port 1 [3F8/IRQ4]
Onboard Serial Port 2 [2F8/IRQ3]
Onboard Parallel Port [378/IRQ7]
Parallel Port Mode [SPP]
ECP Mode Use DMA 3
Item Help
Menu Level ►
13
14
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

13. Use the Arrow keys to highlight the setting for **USB Keyboard Support** and press **Enter**.
    Use the **Page Up** and **Page Down** keys to change the setting to **Enabled**.
14. Use the Arrow keys to highlight the setting for **USB Mouse Support** and press **Enter**.
    Use the **Page Up** and **Page Down** keys to change the setting to **Enabled**.
15. Now use the Arrow keys to highlight **Power Management Setup** and press **Enter**.
    A screen similar to the following will appear:


CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
Power Management Setup
ACPI Suspend Type [S1(POS)]
Soft-Off by PWR-BTTN [Instant-Off]
PME Event Wake Up [Enabled]
Power On by Ring [Enabled]
Resume by Alarm [Disabled]
x Date (of Month) Alarm Everyday
x Time (hh:mm:ss) Alarm 0 : 0 : 0
Power On By Mouse [Disabled]
Power On By Keyboard [Disabled]
x KB Power ON Password Enter
AC Back Function [Full-On]
Item Help
Menu Level ►
16
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

16. Use the Arrow keys to highlight the setting for **AC Back Function** and press **Enter**.
    Use the **Page Up** and **Page Down** keys to change the setting to **Full-On**.
17. Now use the Arrow keys to highlight **PC Health Status** and press **Enter**.
    A screen similar to the following will appear:


CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
PC Health Status
Reset Case Open Status [Enabled]
Case Opened No
Vcore OK
DDR18V OK
+3.3V OK
+12V OK
Current CPU Temperature 44°C
Current CPU FAN Speed 3234 RPM
Current SYSTEM FAN Speed 0 RPM
CPU Warning Temperature [Disabled]
CPU FAN Fail Warning [Disabled]
SYSTEM FAN Fail Warning [Disabled]
CPU Smart FAN Control [Disabled]
CPU Smart FAN Mode [Auto]
Item Help
Menu Level ►
18
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

18. Use the Arrow keys to highlight the setting for **CPU Smart FAN Control** and press **Enter**.
    Use the **Page Up** and **Page Down** keys to change the setting to **Disabled**.
19. Now that all settings are correct, press F10. The following prompt will appear:

    Save to CMOS and EXIT (Y/N) Y

20. Make sure "Y" shows at the end of the prompt (use the arrow keys to select, if necessary), and press **Enter** to save the settings and exit.

Chapter 7 Troubleshooting

Video Troubleshooting

Problem	Cause	Possible Solution
No picture or Corrupted picture on monitor You hear the audio	Power problem	Check the Power On LED on the monitor power supply. Make sure the power cord is connected to the power strip and the power strip is on.
	Loose or faulty video cable	Verify that the video cable is firmly connected from the monitor to the video card in the computer. While the monitor is powered ON, disconnect the video cable. You should briefly see a message on-screen saying *No Input Signal* if the monitor is working. Check the video cable and make sure it is not pinched or frayed. Connect the cable to a different monitor to verify video output.
	Loose or faulty connections between LCD Panel and Control PCB	Make sure that all harnesses between the control PCB and LCD panel are connected properly. Check the DVI video cable and power connection. If you hear Alert beeps from the System PC, contact Technical Support for assistance.
	Loose or faulty video card	When the computer boots up, it performs a PC self-diagnostic test. If you hear 3 beeps from the computer, this indicates a problem with the video card. If the video card is faulty, contact Technical Support. If instructed by Technical Support, open the computer and check the following: • Make sure the video card is seated properly in the motherboard. Reseat the video card. • Check the power connector to the video card inside the computer. Make sure it is connected properly and is not connected backwards. • Power on the computer and make sure the fan on the video card is spinning fast.
No video and no audio **Note:** It takes about 3 minutes to boot and start the game.	BIOS setting has changed	If the computer does not power on, make sure the On/Off switch on the back of the computer is in the On (I) position and *AC Back Function* in the BIOS is set to *Full On* (see page 54).
	No power to computer	Verify the computer is ON by the LED on the front of the computer. Verify the line voltage switch on the back of the computer is set to 115V. Make sure the AC power cord is firmly connected to the computer and the power strip, and the power strip LED is on. Turn off the power strip, wait 20 seconds, and then turn it back on to reboot the computer.
	Corrupted software or Faulty hard drive	Reload the software from the CDs. If you continue to have problems, you may have a faulty hard drive. Contact Technical Support.

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Problem	Cause	Possible Solution
Picture is dim or faded	Gamma and/or Vibrance needs adjustment	Adjust the monitor Gamma and/or Vibrance setting from the Operator Menu **Diagnostics** screens (see page 28). If this does not give adequate results, increase brightness using the monitor remote control board mounted to the back of the monitor.
Red or green horizontal lines on monitor	Faulty LCD control PCB	Contact Technical Support for assistance.

Audio Troubleshooting

Problem	Cause	Possible Solution
No audio	Volume set too low	Use the **VOL UP** button on the Operator Button Panel to raise the volume. Check audio settings in the Operator Menu **Machine Settings: Settings** menu, and verify that the Master Volume is set high enough. Verify the volume pots are not turned all the way down on the Audio Amp PCB (see Figure 23 on page 38).
	Faulty wiring	Turn off the game. Verify that all the wires are firmly connected to the speakers and Audio Amp PCB. Verify that each wire is connected to the correct port. Verify that no wires are frayed or improperly shorting to ground. (See *Audio Amp and Speakers Service* on page 38.)
	Blown speakers	Remove the grills and inspect each speaker for visible damage. Run **Diagnostics: Sound Test** from the Operator Menu to verify each speaker is working.
	Faulty audio amp PCB	To verify audio is working at the computer, connect stereo headphones to each computer audio port. Test the Audio Amp PCB in another cabinet.
Poor sound from one or more speakers	Blown speakers	Remove the grills and inspect each speaker for visible damage. Run **Diagnostics: Sound Test** from the Operator Menu to verify each speaker is working.
	Reversed wires	A weak or low muffled sound is a sign of reversed speaker wires. Check for reversed wires on each speaker. (See *Audio Amp and Speakers Service* on page 38.)
	Faulty audio amp PCB	To verify audio is working at the computer, connect stereo headphones to each computer audio port. Test the Audio Amp PCB in another working cabinet.
	Faulty wiring	Turn off the game. Verify that all the wires are firmly connected to the speakers and Audio Amp PCB. Verify that each wire is connected to the correct port. Verify that no wires are frayed or improperly shorting to ground. (See *Audio Amp and Speakers Service* on page 38.)
Audio hum	Faulty power supply	A constant low hum in the speakers can be caused by a faulty power supply—either the computer power supply, or one of the external DC power supplies (page 48).

Control Troubleshooting

Problem	Cause	Possible Solution
Buttons do not work	Faulty micro switch	Replace the micro switch on the button and re-test.
	Faulty wiring	Disconnect the cabinet from AC power. Verify that all wires are firmly connected to each button and the GVRI/O Mini PCB. Verify that the wires are connected to the correct spades on the button micro switch (see Figure 19 on page 34). Verify that no wires are frayed or improperly shorting to ground.
	Faulty GVRI/O Mini PCB	Make sure that all connections to the PCB are firm. Replace PCB if faulty (see page 36).
Buttons and Pedals do not work	GVRI/O Mini PCB jumpered incorrectly	Make sure jumpers are installed in positions **1** & **3** of **J5–Mode Select** on the GVRI/O Mini PCB (page 36).
Steering pulls to one side	Faulty Force-Feedback PCB	Verify that the force-feedback PCB is getting +24 VDC power. Test the PCB in a working cabinet.
	Faulty motor	Test the steering motor in a working cabinet.
	Faulty 24 VDC power supply	Use a volt meter to verify that the force-feedback power supply is putting out +24 VDC.
	Pot wires reversed	Check the wires between the steering pot and Force Feedback PCB.
Sloppy or poor steering	Poor calibration	Calibrate the steering from **Diagnostics: Play Control Test** in the Operator Menu.
	Faulty 5 KΩ steering pot	Test calibration from **Diagnostics: Play Control Test** in the Operator Menu. Replace pot if faulty (see page 32).
	Loose set screw	Check the set screws in the steering assembly.
	Loose or worn drive belt	Turn off the cabinet. Open the driving control panel and check the belt on the steering motor. Also check for loose or worn gears (see page 32).
	Faulty Force-Feedback PCB	Verify that the PCB is getting +24 VDC power. Test the PCB in a working cabinet. Calibrate the steering from **Diagnostics: Play Control Test** in the Operator Menu.
Steering does not auto-calibrate	Faulty USB cable or PCI USB card	Test by connecting to a motherboard USB port. You may need to reboot twice for Windows to find the device. Also try a new USB cable. After testing, re-connect to a PCI USB port to minimize the risk of intermittent steering loss due to static shock (again, reboot twice).
	Faulty Force-Feedback PCB	Verify that the PCB is getting +24 VDC power. Test the PCB in a working cabinet.
Steering wheel shakes	Faulty 5 KΩ steering pot	Test pot for smooth resistance. If you replace the pot, be sure to calibrate it from **Diagnostics: Play Control Test** in the Operator Menu.
Steering stops working (Intermittent)	Force-Feedback PCB connected to wrong USB port	To minimize the risk static shock, the force-feedback PCB should be connected to a PCI USB port, **not** to a motherboard USB port. Static shock can cause intermittent steering feedback failure. See Figure 41 on page 72 for a diagram of the computer ports.

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Problem	Cause	Possible Solution
No force-feedback in the steering	Belt is broken	Replace belt (see page 32).
	Motor gear is worn	Inspect the motor gear and replace if worn.
	Faulty motor	Test the steering motor in a working cabinet.
	Faulty 24 VDC power supply	Use a voltmeter to verify that the power supply is putting out +24 VDC.
	Steering motor not properly grounded	Make sure the steering motor frame is properly grounded to help minimize the risk of static shock.
	Faulty Force-Feedback PCB	Verify that the PCB is getting +24 VDC power. Test the PCB in a working cabinet.
	Force-Feedback PCB connected to wrong USB port	To minimize the risk static shock, the force-feedback PCB should be connected to a PCI USB port, **not** to a motherboard USB port. Static shock can cause intermittent steering feedback failure. See Figure 41 on page 72 for a diagram of the computer ports.
Shifter does not work in one gear	Faulty micro switch	Replace the faulty micro switch. See *Four-Speed Shifter Service* on page 35.
	Pinched wire	Make sure wires are not pinched by the shifter housing.
Shifter goes into wrong gear	Wires are switched or pinched	Make sure all wires are connected to correct micro switches and are not pinched by the shifter housing.
Shifter does not work	Faulty GVRI/O Mini PCB	Check wiring between the shifter and GVRI/O Mini PCB. Replace PCB if faulty.
Gas or brake does not work properly	Pot is out of calibration	Calibrate the pedals from **Diagnostics: Play Control Test** in the Operator Menu. If you replace a pot or the computer, always recalibrate the pedals. (Pedals **do not** auto-calibrate when you reboot the game.)
	Faulty 5 KΩ pot	Test the pot for smooth resistance. If you replace the pot, be sure to calibrate the pedals from **Diagnostics: Play Control Test** in the Operator Menu.
	Loose set screw	A loose set screw can cause the pedal to work only on a partial range of its motion. Tighten the set screw.

Cabinet Linking Troubleshooting

Problem	Cause	Possible Solution
Cabinet will not link	Faulty wiring	Verify that a CAT-5 or better Ethernet cable is connected between the Ethernet port on the AC Power Plate and the computer. While the cabinet is powered on and connected to another cabinet, verify the green LED on the Ethernet card is lit. If you are using an Ethernet hub or switch, verify green LEDs on the hub or switch light for each Ethernet port that is connected. **Note:** CAT-5 cables have 8 wires.
	Incompatible coupler used	Do not use a crossover coupler to link this game.
Cabinet does not link in software	Duplicate Link ID numbers	A cabinet with a duplicate Link ID number will display the *Select A Link ID* menu. You can also check or change the Link ID from the Operator menu **Machine Settings: Settings** screen. Each cabinet in a linked group must have a unique Link ID number.

Problem	Cause	Possible Solution
Cabinet does not link in software (Continued)	Faulty wiring	Verify that a CAT-5 or better cable is connected between the Ethernet port on the AC power plate and the computer. While the cabinet is powered on and connected to another cabinet, verify the green LED by the Ethernet port is lit to verify a good hardware connection. If using an Ethernet hub or switch, verify green LEDs on the hub or switch are lit for each Ethernet port used. **Note:** CAT-5 cables have 8 wires.
	Incompatible coupler used	Do not use a crossover coupler to link this game.
	Faulty Ethernet hub or switch	Verify the LEDs on the Ethernet hub or switch are lit for each port used. If possible, verify the hub or switch is working by connecting it to a known working computer network or set of linked cabinets.
	Mixed Software Game Version	Verify that all cabinets are running the same Game Version. (Shown in **Machine Settings: Info** screen.)
	Mixed Comm Version	Verify that all cabinets are running the same Comm Version. (Shown in **Machine Settings: Info** screen.)

Miscellaneous Troubleshooting

Problem	Cause	Possible Solution
No power	Power strip not plugged in or turned off	Make sure the power strip ON/OFF switch is ON, and the light on the power strip is on. If the light is off, make sure the connections to the AC power plate and power transformer terminals are secure.
	Cabinet not connected or turned off	Make sure the AC power cord is firmly connected to the power plate and an active AC outlet, and the cabinet ON/OFF switch is ON.
Game Dongle not found by system computer	Game Dongle not connected	Make sure the Game Dongle is securely connected. Power the cabinet off and then on.
	Faulty Game Dongle	Make sure the dongle is connected properly. It will light-up red when recognized by the computer.) Contact Tech Support to exchange a faulty dongle.
	Faulty USB port	Test the dongle in a PCI USB port.
Cabinet gets very warm	Faulty ventilation fan	Verify that the ventilation fan is working. It is located above the monitor access door on the back of the cabinet. Replace the fan if it is worn or spinning slowly.
	Cabinet ventilation holes are blocked	Make sure you have proper clearance between the cabinet rear and the wall. Make sure the vent holes are clear of dust and debris and that air is freely blowing out of the cabinet.
Marquee lamp does not light or is intermittent	Faulty florescent tube	Check the florescent tube for darkened or cracked end. Replace the florescent tube if it looks worn.
	Faulty florescent fixture	Verify the florescent tube pins make a good connection with the lamp fixture. Check the ballast for proper operation. Replace fixture if faulty.
Wrong Date or Time in Menus	Set date or time needs to be set	Refer to *Setting the Date and Time* on page 53.
Disabled Tracks are Still Available	Cabinet Mismatch	All linked cabinets must have the same tracks enabled or the software ignores Disable Track settings.
Game will not accept coins	Faulty coin mech	Verify the coin mech is not jammed and is properly aligned and latched to the coin door.
	Faulty ground wire	Check the ground wire to the coin door.

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Problem	Cause	Possible Solution
Wrong number of credits shown	Incorrect setting	Adjust settings from the Operator Menu.
	Faulty wiring	Disconnect cabinet power cord. Check all coin mech wiring. Verify no wires are frayed or shorting to ground.
Optional DBA not working	Incorrect dipswitch setting	Set dipswitches for Long Pulse or Gaming (***not*** Short Pulse or Vending).
Some tracks and drivers missing	International Cabinet	Due to licensing issues, some tracks and drivers available in the USA are not available internationally.

Error Message Screens

The messages below may appear at boot if the software detects a hardware problem.

Boot Error Message	Explanation and Solution
Dongle Missing or Invalid	Make sure the USB Game Dongle is firmly connected.
Invalid Dongle: Incorrect Game Version	Dongle does not match game version. If you upgrade the software, be sure you connect the corresponding Game Dongle.
There is a CD in the Drive	Eject the CD from the drive. Press the **START** button to continue to boot the game.
Error Detected with GVRIO Board	The GVRI/O Mini PCB is either disconnected or malfunctioning. Make sure jumpers are installed in positions **1** & **3** of **J5—Mode Select** (see page 36). Check all connections to the PCB. Replace the PCB if faulty.
Incorrect GVRIO Board	The screen will display the revision numbers of the GVRI/O Mini PCB installed, and the one required. Contact your distributor to order the correct GVRI/O Mini PCB.
Duplicate Link ID Please Select a New Link ID	The cabinet has the same Link ID as another cabinet. Turn the steering wheel to select a different Link ID from the numbers displayed. Numbers displayed in **gray** are available. Turn the wheel to select an ID and press the **START** button. Remember to number your cabinets in sequence from left to right.
Steering Auto Calibration failed. Please turn the wheel all he way to the left and all the way to the right	The software detected a problem with steering. Once you turn the wheel, the software will determine whether the problem is with the steering pot or the force-feedback. If the problem is with the force feedback, you will be given the option to start the system without force feedback. If the steering pot is not working, the game cannot be started. See page 31 for steering service.
Attract Mode Error Messages	**Explanation and Solution**
A **Red Dot** appears in the lower right corner of the Attract Screen	Indicates hardware error, usually with a button, gas or brake pot, or steering. Explanation is displayed on **Machine Settings: Info** screen in Operator Menu.
A **Blue Dot** appears in the lower right corner of the Attract Screen	Indicates Cabinet Mismatch error in linked cabinets. Explanation is displayed on **Machine Settings: Info** screen. The following conditions will cause a Blue Dot error message: • **Winner Gets Free Game** not set the same on all cabinets • **Free Game Min Players** not set the same on all cabinets • **Race Length** not set the same on all cabinets • Duplicate Cabinet Link ID • Different Software Game Version on one or more cabinets • Different Tracks Disabled • Different Region (Set by Game Dongle)

Chapter 8 — Replacement Parts

If you need replacement parts, please reference these part numbers when contacting GLOBAL VR® technical support or your distributor.

Notes: Part numbers may change due to hardware or software revisions.
Parts are for both Standard and Deluxe cabinets except as noted.
Qty column refers to quantity used per cabinet, with quantities for Deluxe (DLX) and Standard (STD) shown as applicable.

Documents and Software

Part Number	Qty	Description
040-0146-01	1	Operation & Service Manual (This Document)
040-0153-01	1	Software Restore Guide
050-0137-01	1	System Recovery Disk, Version 1.1
050-0136-01	1	Game Install Disk, Version 1.1 (1 CD)

Cables

Part Number	Qty	Description
115-0005-02	1	Cable, Steering to Force-Feedback PCB
115-0006-01	1	Cable, Steering Motor to Force-Feedback PCB
115-0007-01	1	Cable, +24VDC to Force-Feedback PCB
115-0008-01	2	Cable, 110VAC to Power Supply (PCBs, Lighting, & Steering Power)
115-0082-00	1	Cable, Transformer interconnect cable
115-0119-01	2	Cable, Audio to Front Speakers (Deluxe)
115-0121-01	1	Cable, 6', 110VAC to +24VDC Power Supply (LCD Monitor Power)
115-0145-01	1	Cable, Audio Amp to Seat Harness
115-0146-01	1	Cable, Main Harness, GVRI/O, Power, USB
115-0147-01	1	Front Speaker Harness (Standard)
115-0148-01	1	Cable, Control Panel, Switches, Lights
115-0149-01	1	Cable, Shifter, Switch, Light
115-0150-01	1	Cable, Outputs, Leader Light, Start Button Lamp, Coin Mechs
115-0151-01	1	Cable, +5/+12 VDC Power Harness
115-0152-01	1	Cable, Coin Door and Operator Buttons
115-0153-01	1	Cable, Floor Light Power Harness
115-0154-01	1	Cable, Marquee Florescent Light Power Cord (Deluxe)
115-0155-01	1	Cable, Front Speaker Audio Harness (Deluxe)
115-0157-01	2 DLX 1 STD	Cable, Marquee Florescent Light Power Adapter
115-0161-01	1	Cable, AC Power to Marquee Lights (Standard)
115-0163-01	1	Cable, 4-Speed Shifter Interconnect
115-0193-00	1	Cable, Transformer Power Y
96-0539-00	3	Cable, Stereo, 3.5 mm 6'
TRD855BL-5	2	Cable, RJ-45 CAT 5E PATCH Cable, 5 FEET LONG
USB-AB06MM	2	Cable, USB Cable 6FT,USB2-ABO6
115-9635-01 REV A	1	Cable, Ethernet, CAT 5, 10'
80-0213-00	2	POWER CORD 6', SJT UL recognized

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Cabinet Hardware

Part Number	Qty	Description
Electronics		
45074-00	1	Computer Assembly
990-0014-NS-1	1	GVRI/O Mini PCB
44-0600	1	Power Supply, 24 Volt (Steering)
44-1100-01	1	Power Supply, 5V/12V 115 W (PCBs & Lights)
45007-00	1	Power Plate Assembly
49-0963-40	1	Power Strip, 7-Outlet Surge Protect, 6' 15 AMP, 1500Joules
0001.2512	1	Power Plate Fuse, 6A, 5mm X 20mm
2-30-2434	1	Power Transformer, 115-230V, 500W
12V-FAN-QCA	1	Fan, 12V DC BB, 120MM, W/ FAN GUARD & CONNECTOR
137657	1	Power Supply, 24 VDC, 10 A
USB-KQRTG-HL-NAS-US-SD	1	Game Dongle (Exchange Only)
Monitor		
EI-420W02-001-AOD	1	42" LCD Monitor with Control PCB (Deluxe)
85-LTA320W2-L14-5G	1	32" LCD Monitor with Control PCB (Standard)
26126-00	1	42" Glass Display Shield (Deluxe)
26138-00	1	32" Glass Display Shield (Standard)
Driving Controls		
50-0102-14	1	Steering Assembly, with motor & wheel (See Figure 35 on page 66)
68086925	4	Acorn Nut, M10x1.5, Zinc, to Mount Steering Assembly
COEM-6040-245	1	Immersion Force-Feedback PCB
50-0413-00	1	Dual Pedal Assembly (See Figure 34 on page 65 for Details)
59-6004-800H1628	1	START button assembly
59-6004-855H1625	1	VIEW button assembly
59-6004-855H1626	1	MUSIC (♪) button assembly
59-6004-855H1648	1	LOOK BACK Button Assembly
50-8496-NAS	1	4-Speed Shifter (See Figure 33 on page 65 for Details)
95-4118-00	4	Micro Switch for 4-Speed Shifter
Lighting		
49-1001-00	2 DLX 1 STD	Florescent Light Fixture, 18" (Order with PN 115-0157-01 Installed)
METL6R	3 DLX 1 STD	LED Light Tube, Red, 6.13", 12VDC
CCFL2R	2	Red CCFL Kit
CCFL2R-EXT	1	Red CCFL Kit with Harness Extension (Deluxe)
26140-00	2	Housing for CCFLs Under Control Panel & Cabinet Rear
Audio		
50-9986-00	1	Speaker Pair, 3-Way, 50 Watt (Front Speakers, Deluxe)
5.25 SPEAKER PAIR	*	5.25" Speaker, used for Front and Center Speakers on Standard, and Center Speaker on Deluxe. *Speakers ship in Pairs, but Standard uses 3 Speakers and Deluxe uses 1 Speaker.
990-0001-01	1	5.1 Audio Amp PCB
Miscellaneous		
60076-00	1	Roll Bar Fabric (Deluxe)
60077-00	1	Roll Bar Pad (Deluxe)
4491K17	3	Polyethylene Plug, 1.284" x 1.175" for Tube Ends (Deluxe)
40-6000-08	1	Coin Door Assembly, Over-Under, 2 Mechs, DBV Cut-Out
50-0244-NDNC	1	Seat Assembly, with Speakers and Harness
50-0400-00	1	Seat Slide Kit
60039-00	1	Computer Mounting Strap

Shifter Assembly

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	96-0094-00	BASE PLATE 4 SPD SHFT BLK
2	1	96-0095-00	SIDE BRACKET W/PIN CLR ZNC PLT
3	1	96-0084-00	GATE BLOCK UPPER MOLDED
4	1	96-0092-00	SIDE BRACKET NO PIN CLR ZNC PLT
5	1	96-0088-00	GATE BLOCK LOWER MOLDED
6	1	50-8390-00	INNER BOX A, SUB ASSY, PLT
7	1	50-8418-00	INNER BOX, B, ASSY
8	1	50-8346-00	TRUNNION, FOR I.L. TURBO SHIFTER
9	1	96-0090-00	KNOB & SHAFT ASSY 1-3/4 BLK BALL KNOB
10	1	50-8299-00	ANCHOR PIN, HANDLE BLK OXD.
11	1	96-0085-00	RETAINER PLATE
12	4	96-0089-00	ACTUATOR, SPRING STEEL
13	4	95-1807-00	DB STYLE MINATURE SWITCH
14	6	43-0133-00	#14S BRS FLAT WSH .26X.56X.04
15	4	43-0118-00	E-RING, 1/4" SHAFT DIA
16	1	50-8414-00	TOP PLATE, SCREENED, 4-SPD SHFT, RED
17	1	50-8422-00	GUIDE WASHER, 4 SPD SHIFTER
18	2	50-8406-00	BUSHING, NYLINER, F/.078 THK MAT.
19	2	50-8491-00	BUSHING NYLINER F/.072/.135 THK MAT.
20	4	43-0307-00	SCREW, 8-32X3/4 PH P. H. MS
21	8	43-0252-00	SCREW, #8-32 x 3/8 HEX HEAD
22	2	43-0134-00	SCREW, 8-32X5/16" PH HD MS W/SEMS E-WSH
23	1	50-8118-00	E-RING FOR GEAR SHIFTER M15
24	2	50-8294-00	SPRING, HAIRPIN, HLR SHFTR, SHORT

NOTES:
NOT SHOWN 90-1013-00 (TIE WRAP 4" LENGTH)
Drawing © Happ Controls.

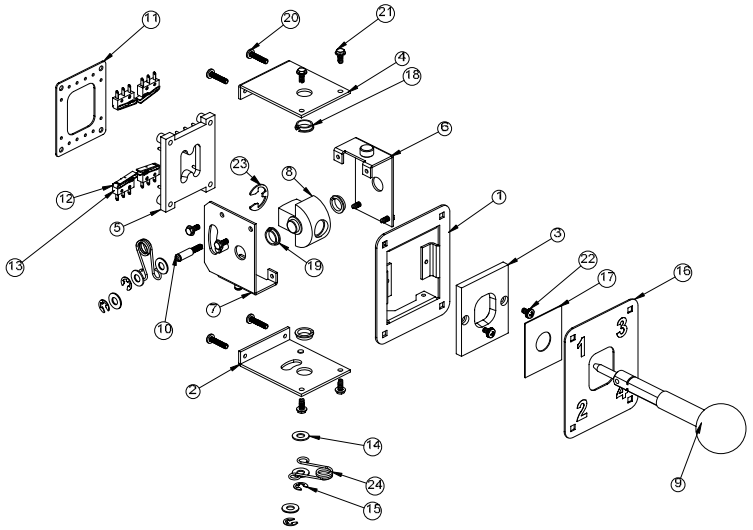

Figure 33. Shifter Assembly Exploded View and Parts

Pedal Assembly

ITEM NO	QTY	PART NO.	DESCRIPTION
1	1	95-2534-00	PEDAL & BEAM ASSY PERFORATED BREAK CHROME
2	1	95-2520-00	PEDAL & BEAM ASSY PERFORATED GAS CHROME
3	1	50-8372-90	PEDAL FRONT PLATE DUAL SMOOTH BLACK
4	4	50-2588-00	SIDE PLATE RIGHT & LEFT
5	4	50-8171-00	BUMPER
6	8	50-8170-00	SPACER, TUBE
7	1	50-8042-00	SPRING F/PEDAL, RH HELIX
8	2	50-8049-00	SPRING F/PEDAL, LH HELIX
9	2	50-2979-00	PIVOT SHAFT, PAINTLOC
10	2	50-8069-02	GEAR, 1MOD, 12T, .25 BORE
11	2	96-4916-00	LONG LIFE POT W/NUT & WSHR 5K
12	2	95-0925-00	GEAR SEG 1MOD 80T
13	8	43-0726-00	CARRIAGE BOLT, 1/4-20 X .50 BLK OXD.
14	9	43-0075-00	SCREW, M5 X 60MM HHCS
15	2	43-0269-00	SCREW, M6 X 30MM HHCS
16	9	43-0068-00	LOCKWASHER, M5 RIBBED
17	8	90-1209 00	1/4-20 HEX NUT W/KEPS
18	2	43-0983-00	LOCKWASHER M6 RIBBED
19	2	43-0050-00	HEX NUT M4
20	2	43-0051-00	SCREW, M4 X 16 MM HHCS
21	4	43-0198-00	WASHER, M4 FLAT WSH DIN 125A
22	2	43-0277-00	SET SCREW, M4X8MM CUP POINT
23	9	43-0125-00	NUT M5
24	4	50-2587-00	BUSHING .35 DIA 5/16 O.D.
25	2	50-0097-00	WASHER GUIDE 4.38 X 1.75 W/.44 SQ HL BLK PLST
26	1	50-0008-00	COMPRESSION SPRING .94 OD X 2.00 LG x .125 DIA W.
27	1	50-0011-00	CYLINDER & TUBE ASSY., I.T. PEDAL

Drawing © Happ Controls

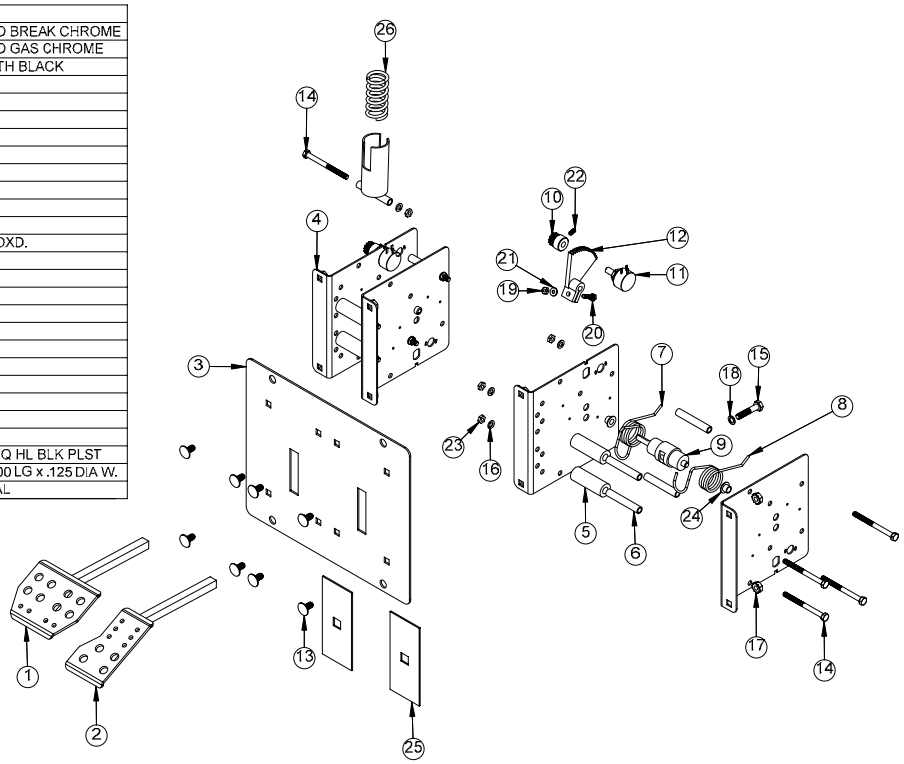

Figure 34. Pedal Assembly Exploded View and Parts

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Steering Assembly

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	43-0341-00	SCREW, 1/4-28 X 1 SHCS
2	1	50-4014-00	SHAFT, 270 DEG. ACTIVE WHEEL
3	1	43-0305-00	KEY, 3/16 SQ. X .74
4	2	43-0232-00	NUT, HEX NYLOCK 1/2-20
5	1	43-0340-00	LOCKWASHER, EXT. M12
6	1	50-2092-00	KEY, SHAFT 4MM x 4MM x 25MM
7	1	43-1170-00	SCREW, #6-32 x 3/8" SHCS
8	1	50-4043-00	MOTOR & CONNECTOR ASY.
9	1	50-4016-00	WHEEL MTG. BRACKET
10	1	50-8129-00	BEARING HOUSING
11	2	50-8130-00	BEARING, .59 ID X 1.259 OD
12	1	50-8455-00	MOTOR MTG. BRACKET
13	1	50-2659-00	BEARING SPACER
14	1	50-4040-PL	PULLEY, 16T 1/5 PITCH, PLASTIC
15	4	43-0188-00	SCREW, #8-32 x 3/8" HEX WASHER HD
16	1	43-0576-00	SCREW, M6 x 60MM HHCS
17	1	90-1208-00	FLAT WASHER, 1/4 I.D.
18	1	50-2545-00	BRACKET, BELT TENSIONER
19	4	42-0093-00	NUT 10-32 HEX W/SEMS, ZINC PLTD
20	2	43-0117-00	HEX HD CAP SCREW M10x30,GR 8.8
21	2	43-0978-00	SCREW, M10 x 40MM HHCS
22	1	50-8145-00	DIE CAST WHEEL STOP, W/BUMPERS
23	4	43-0034-00	LOCKWASHER M10 RIBBED
24	4	43-0035-00	NUT HEX M10
25	1	50-4045-PL	STOPPER PIE CAM & PLASTIC PULLEY
26	1	50-4041-00	TIMING BELT, BLACK 3/8" WIDE
27	1	50-2670-00	5K POT, NEI 'SENSORCUBE"
28	1	43-0018-00	LOCKWASHER, INT. 3/8" x 9/16"
29	1	43-0014-00	HEX NUT 3/8"-24 X 3/32 THK
30	1	50-4018-00	POT. MTG. BRACKET
31	1	50-4032-00	SPACER, POT MTG. BRACKET
32	1	43-0184-00	SCREW, #10-32 x 3/8" PHPNHD
33	1	43-0995-00	#10 FLAT WASHER
34	1	43-0735-00	SCREW, M4 X 12 SHCS
35	1	50-2511-00	ATARI GAMES PATENT DECAL
37	1	50-2525-00	SPLIT HUB FOR 5/8" SHAFT & 1/4-20 TAP
38	1	50-1035-00HD	HOOP, SOFT RUBBER TYPE 60 DUROM
39	1	50-2715-00	CAP WITH CHECKERED FLAGS LOGO
40	3	43-0328-00	SCREW, 1/4-20 X .75" SOCKET HD CAP B.O.
41	6	43-0284-00	SCREW, 8-32 X 1/2 TORX TP B.H.
42	1	43-1554-00	STAR WASHER M14 EXTERNAL TOOTH

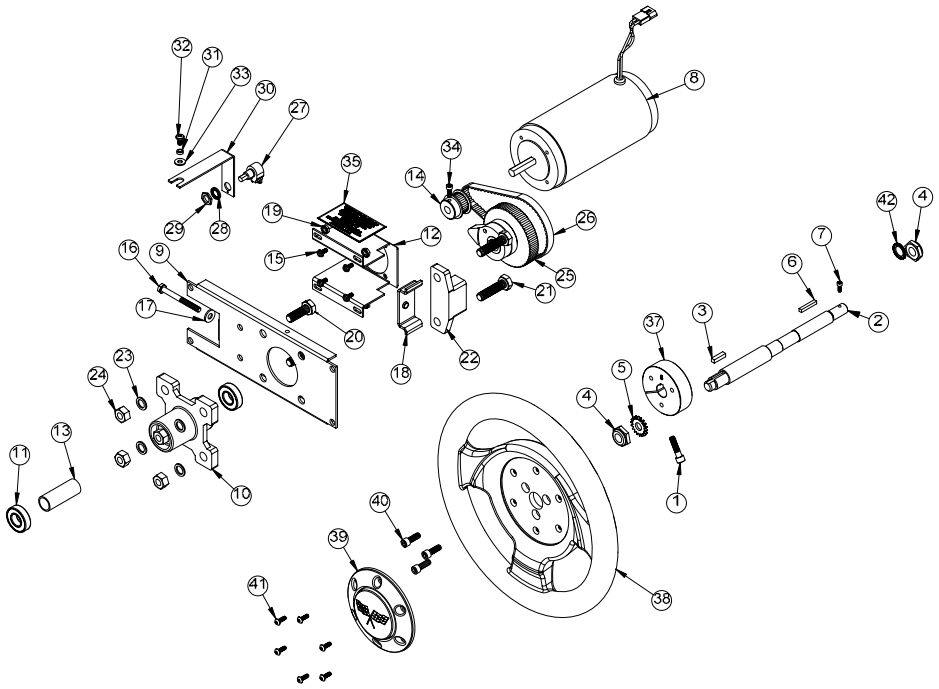

Figure 35. Steering Assembly Exploded View and Parts

Artwork and Exterior Plastic Parts (Deluxe)

Cabinet Number Decal Sheet (1—4) NAS-AW-15-02
Cabinet Number Decal Sheet (5—8) NAS-AW-15-03
60076-00 Roll Bar Fabric
60077-00 Roll Bar Pad
NASDLX-AW-05-02 Marquee Right Side Decal (One on Each Side)
Control Panel Decals
NAS-AW-10-01 Temp
NAS-AW-10-02 Oil
NAS-AW-10-03 RPM
Cabinet Number Decal
NASDLX-AW-02 Right Control Panel Side Decal
NASDLX-AW-06 Seat Back Decal
NAS-AW-05 Fender & Left Pedestal Decal
26134-00 Rear Seat Housing
26131-00 Wheel Housing (1 of 2)
NAS-AW-13 Seat Pedestal Back Decal
NASDLX-AW-04 Large Right Side Panel Decal
NAS-AW-08 Right Side Seat Decal (Not Shown)
26133-00 Right Quarter Panel
NAS-AW-06 EA SPORTS Decal
NASDLX-AW-07 Marquee Artwork
26139-00 Marquee Clear Plastic
NASDLX-AW-05-01 Marque Left Side Decal
NAS-AW-12 Shifter Decal
NASDLX-AW-01 Left Control Panel Side Decal
NAS-AW-05 Fender & Right Pedestal Decal
26132-00 Left Quarter Panel
NASDLX-AW-03 Left Quarter Panel Decal
NAS-AW-07 Left Side Seat Decal
NAS-AW-05 Fender & Left Pedestal Decal
NAS-AW-14 Rear Base Decal
NAS-AW-06 EA SPORTS Decal

Figure 36. Deluxe Cabinet Artwork

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Artwork and Exterior Plastic Parts (Standard)

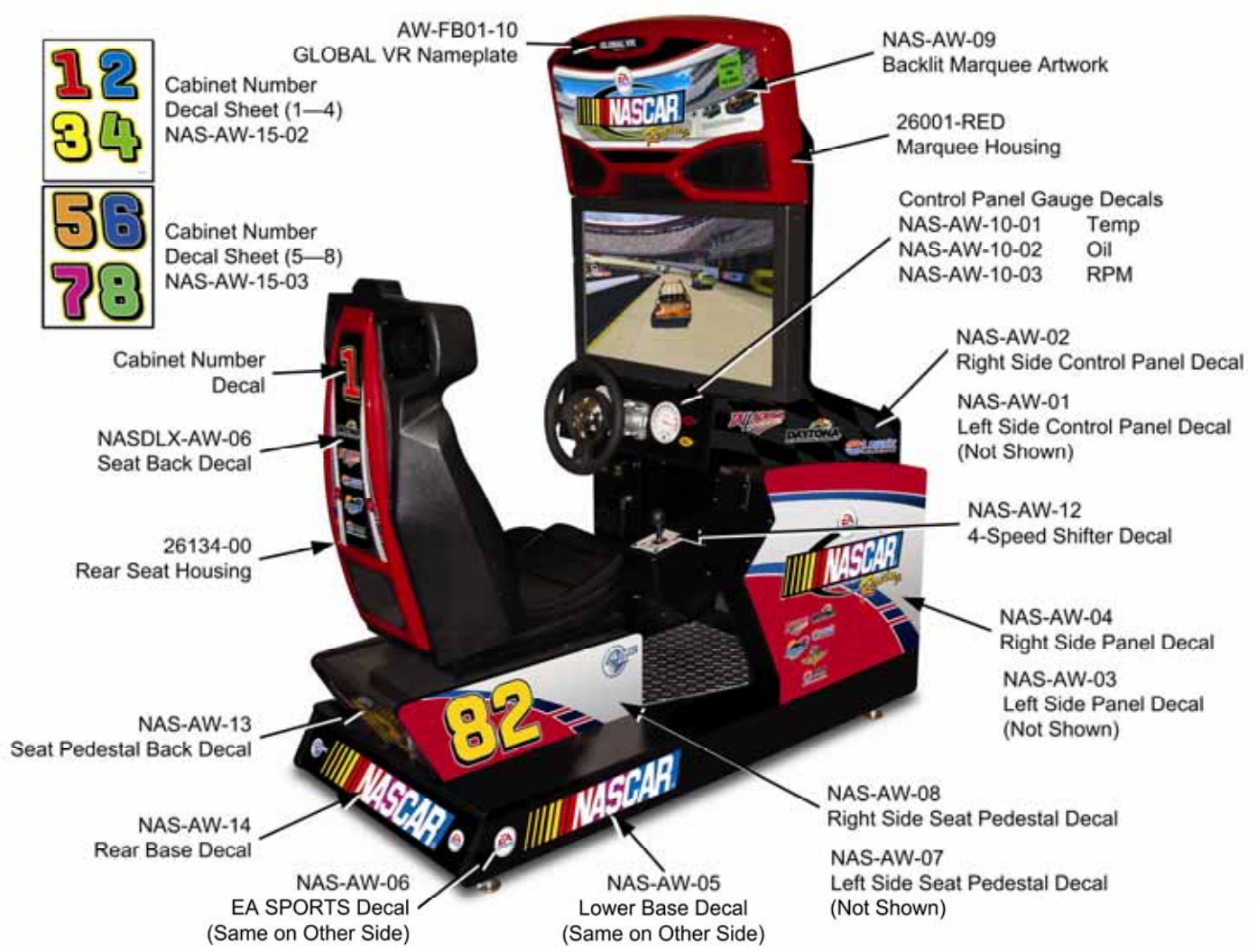

Figure 37. Standard Cabinet Artwork

Chapter 9 — Diagrams and Schematics

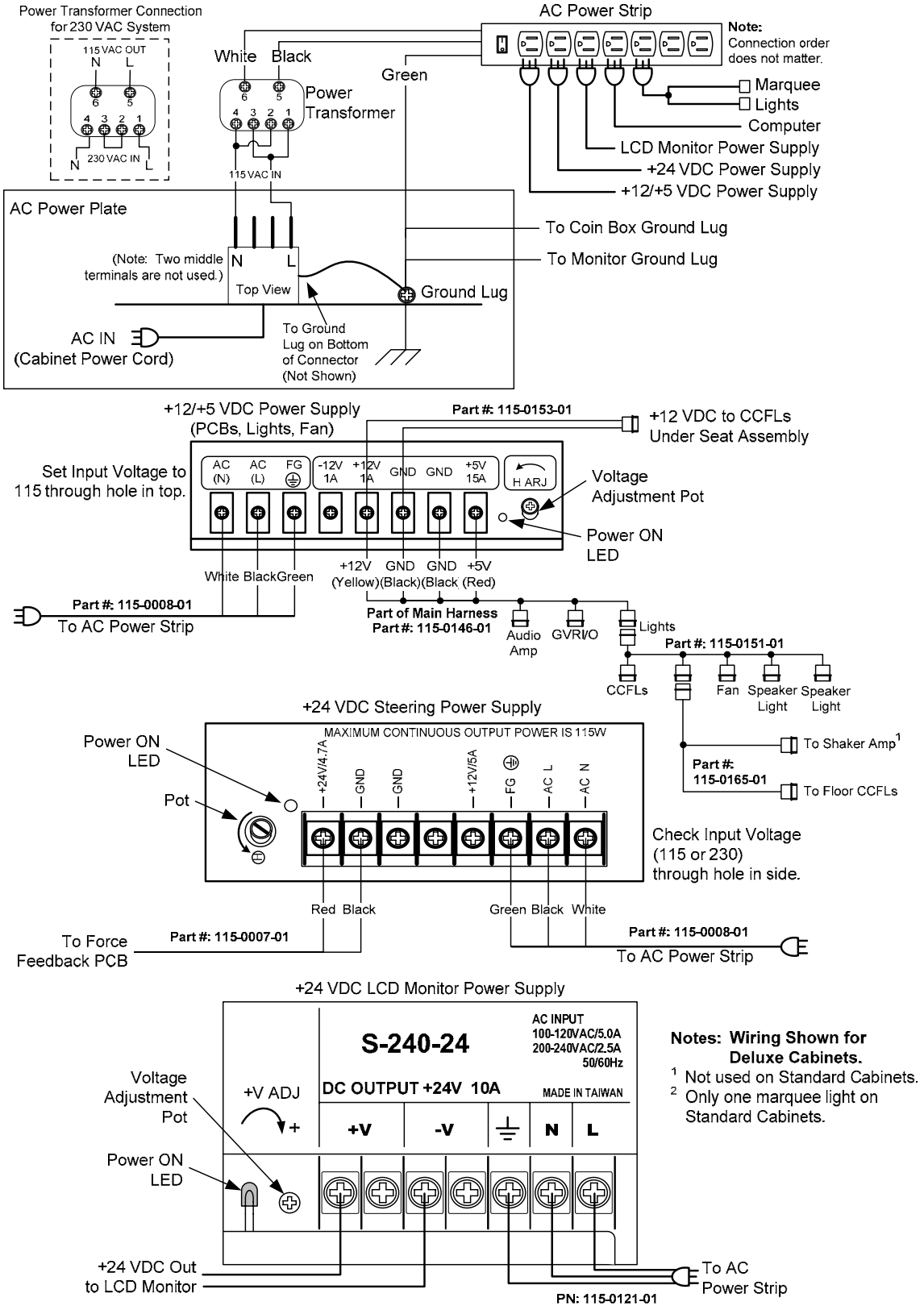

Figure 38. Power Distribution Diagram

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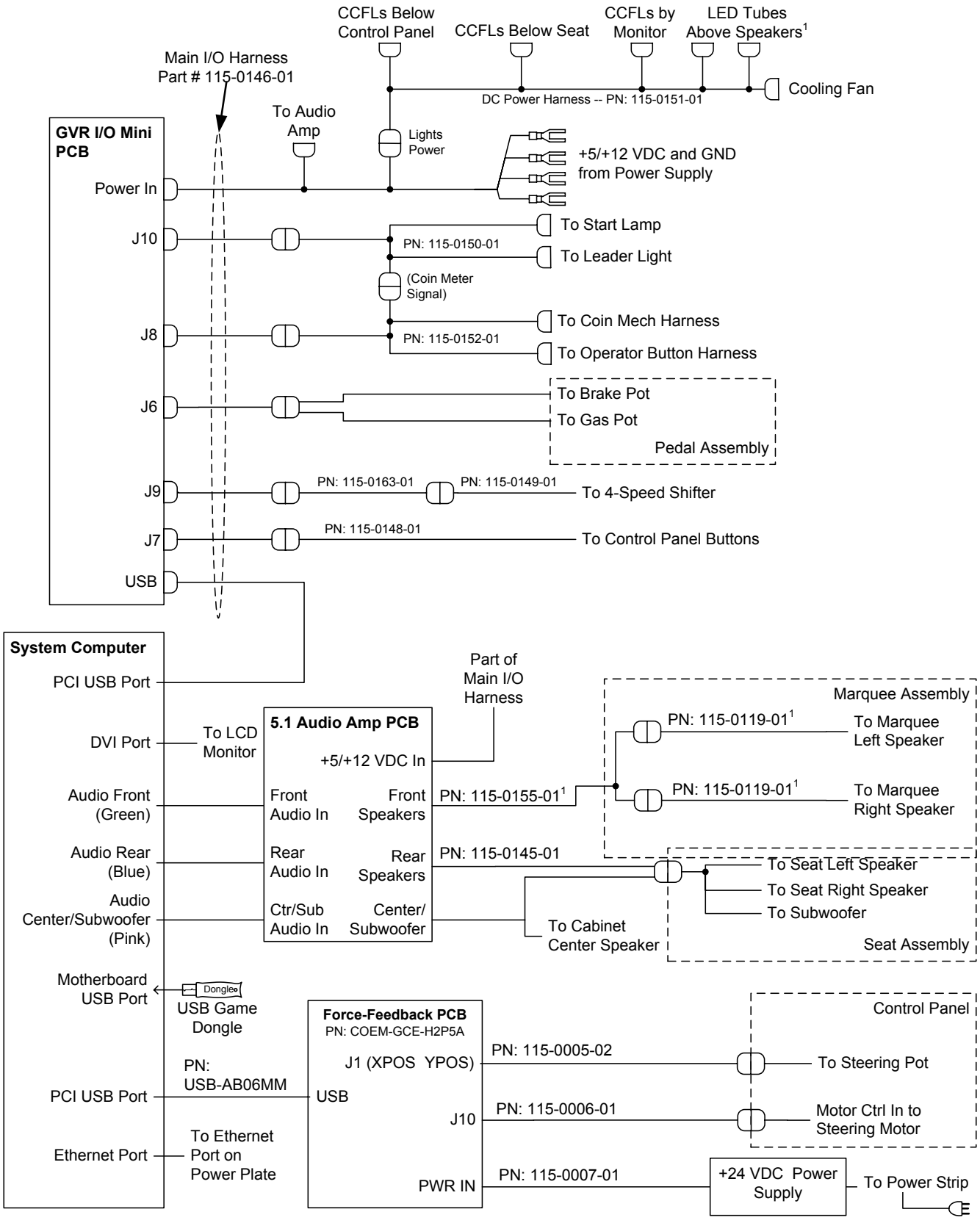

Notes: Wiring Shown for Deluxe Cabinets.

[1] For Standard Cabinets, 115-0147-01 replaces 115-0155-01 and both 115-0119-01 harnesses.

Figure 39. Simplified Wiring Diagram

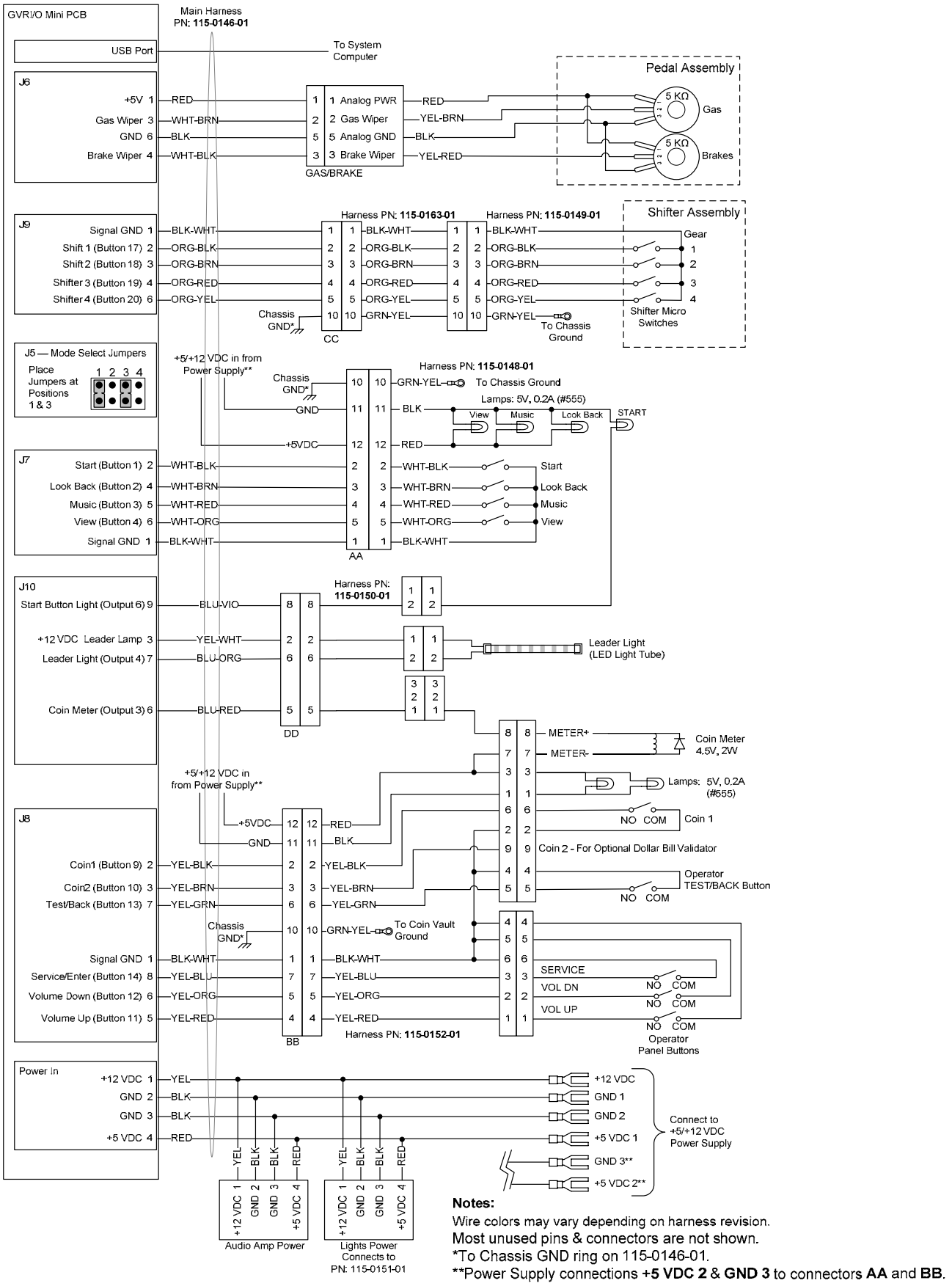

Figure 40. Detailed Wiring Diagram

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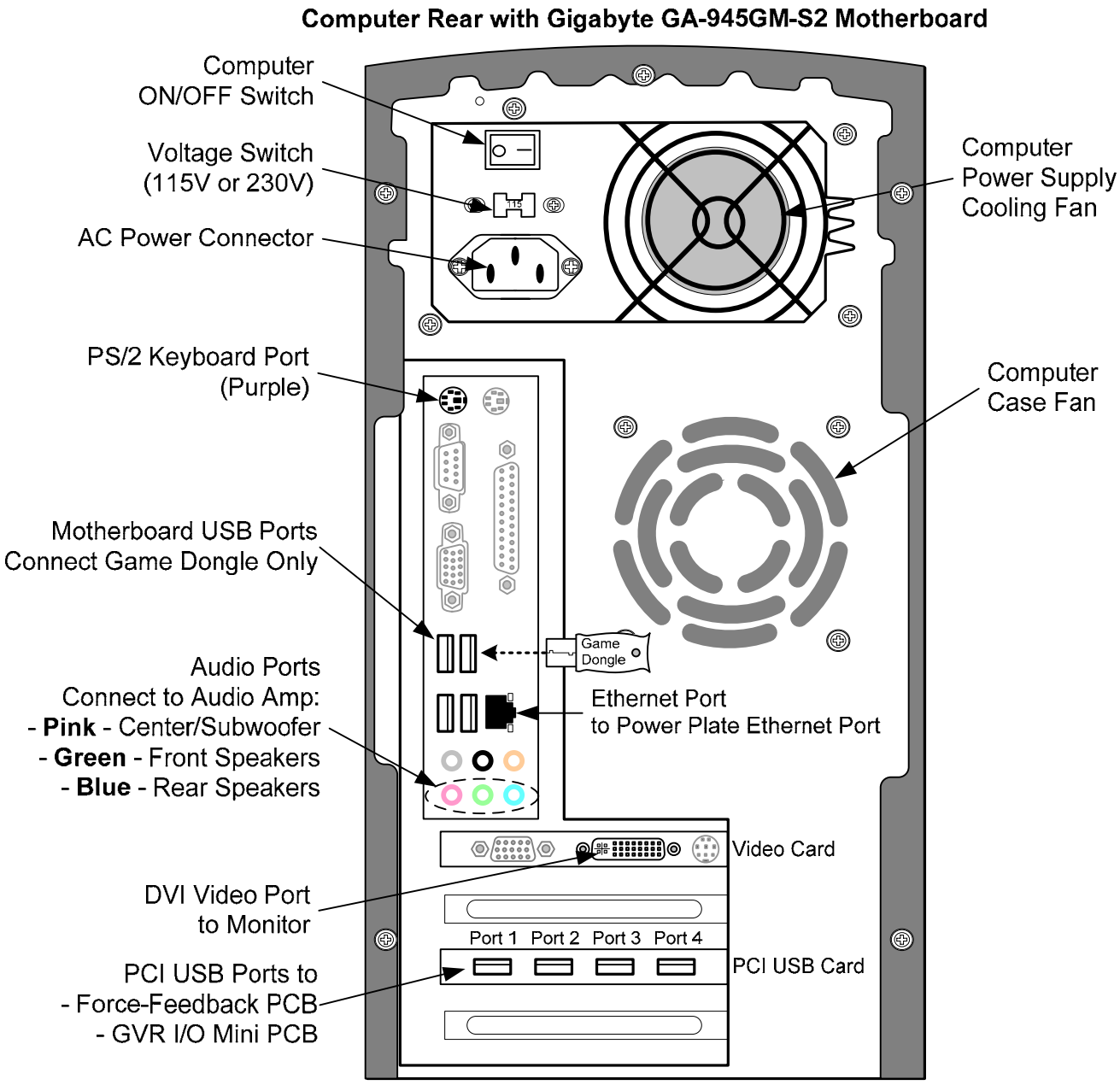
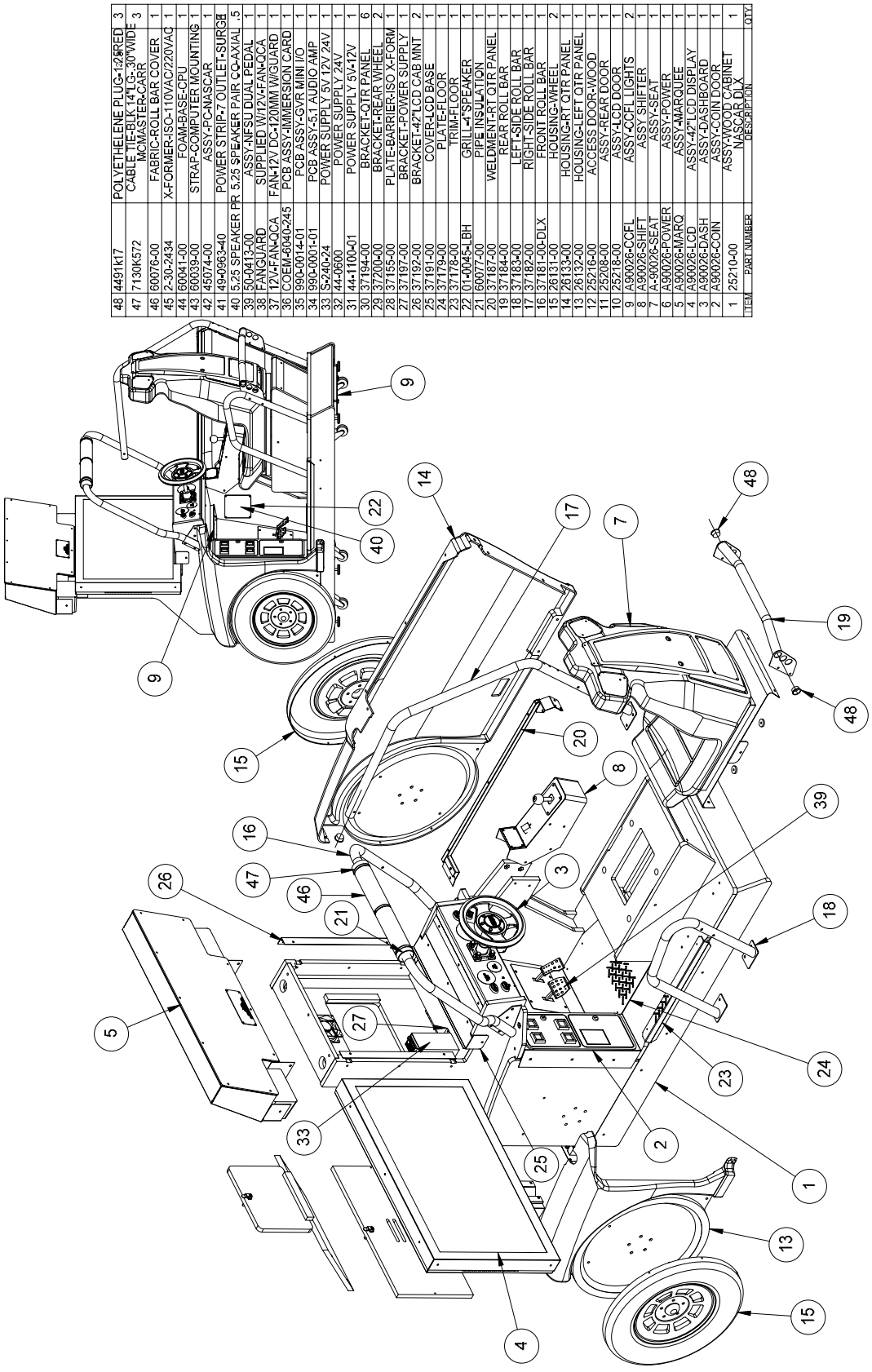


Figure 41. Computer Rear Panel Diagram



ITEM	PART NUMBER	DESCRIPTION	QTY.
48	44911K17	POLYETHELENE PLUG-1/2"RED	3
47	7130K572	CABLE TIE-BLK 14"LG-.30"WIDE MCMASTER-CARR	3
46	60076-00	FABRIC-ROLL BAR COVER	1
45	2-30-2434	X-FORMER-ISO-110VAC/220VAC	1
44	60041-00	FOAM-BASE-CPU	1
43	60039-00	STRAP-COMPUTER MOUNTING	1
42	45074-00	ASSY-PC-NASCAR	1
41	49-0963-40	POWER STRIP-7 OUTLET-SURGE	1
40	5.25 SPEAKER PR	5.25 SPEAKER PAIR CO-AXIAL	5
39	50-0413-00	ASSY-NFSU DUAL PEDAL	1
38	FANGUARD	SUPPLIED W/12V-FAN-QCA	1
37	12V-FAN-QCA	FAN-12V DC-120MM W/GUARD	1
36	COEM-6040-245	PCB ASSY-IMMERSION CARD	1
35	990-0014-01	PCB ASSY-GVR MINI I/O	1
34	990-0001-01	PCB ASSY-5.1 AUDIO AMP	1
33	S-240-24	POWER SUPPLY 5V 12V 24V	1
32	44-9600	POWER SUPPLY 24V	1
31	44-1100-01	POWER SUPPLY 5V-12V	1
30	37194-00	BRACKET-QTR PANEL	6
29	37200-00	BRACKET-REAR WHEEL	2
28	37155-00	PLATE-BARRIER-ISO X-FORM	1
27	37197-00	BRACKET-POWER SUPPLY	1
26	37192-00	BRACKET-42"LCD CAB MNT	2
25	37191-00	COVER-LCD BASE	1
24	37179-00	PLATE-FLOOR	1
23	37178-00	TRIM-FLOOR	1
22	01-0045-LBH	GRILL-4"SPEAKER	1
21	60077-00	PIPE INSULATION	1
20	37187-00	WELDMENT-RT QTR PANEL	1
19	37184-00	REAR ROLL BAR	1
18	37183-00	LEFT-SIDE ROLL BAR	1
17	37182-00	RIGHT-SIDE ROLL BAR	1
16	37181-00-DLX	FRONT ROLL BAR	1
15	26131-00	HOUSING-WHEEL	2
14	26133-00	HOUSING-RT QTR PANEL	1
13	26132-00	HOUSING-LEFT QTR PANEL	1
12	25216-00	ACCESS DOOR-WOOD	1
11	25208-00	ASSY-REAR DOOR	1
10	25218-00	ASSY-LCD DOOR	1
9	A90026-CCFL	ASSY-CCFL LIGHTS	2
8	A90026-SHIFT	ASSY SHIFTER	1
7	A-90026-SEAT	ASSY-SEAT	1
6	A90026-POWER	ASSY-POWER	1
5	A90026-MARQ	ASSY-MARQUEE	1
4	A90026-LCD	ASSY-42"LCD DISPLAY	1
3	A90026-DASH	ASSY-DASHBOARD	1
2	A90026-COIN	ASSY-COIN DOOR	1
1	25210-00	ASSY-WOOD CABINET NASCAR DLX	1

Figure 42. Main Assembly Drawing (Deluxe), Page 1 of 2

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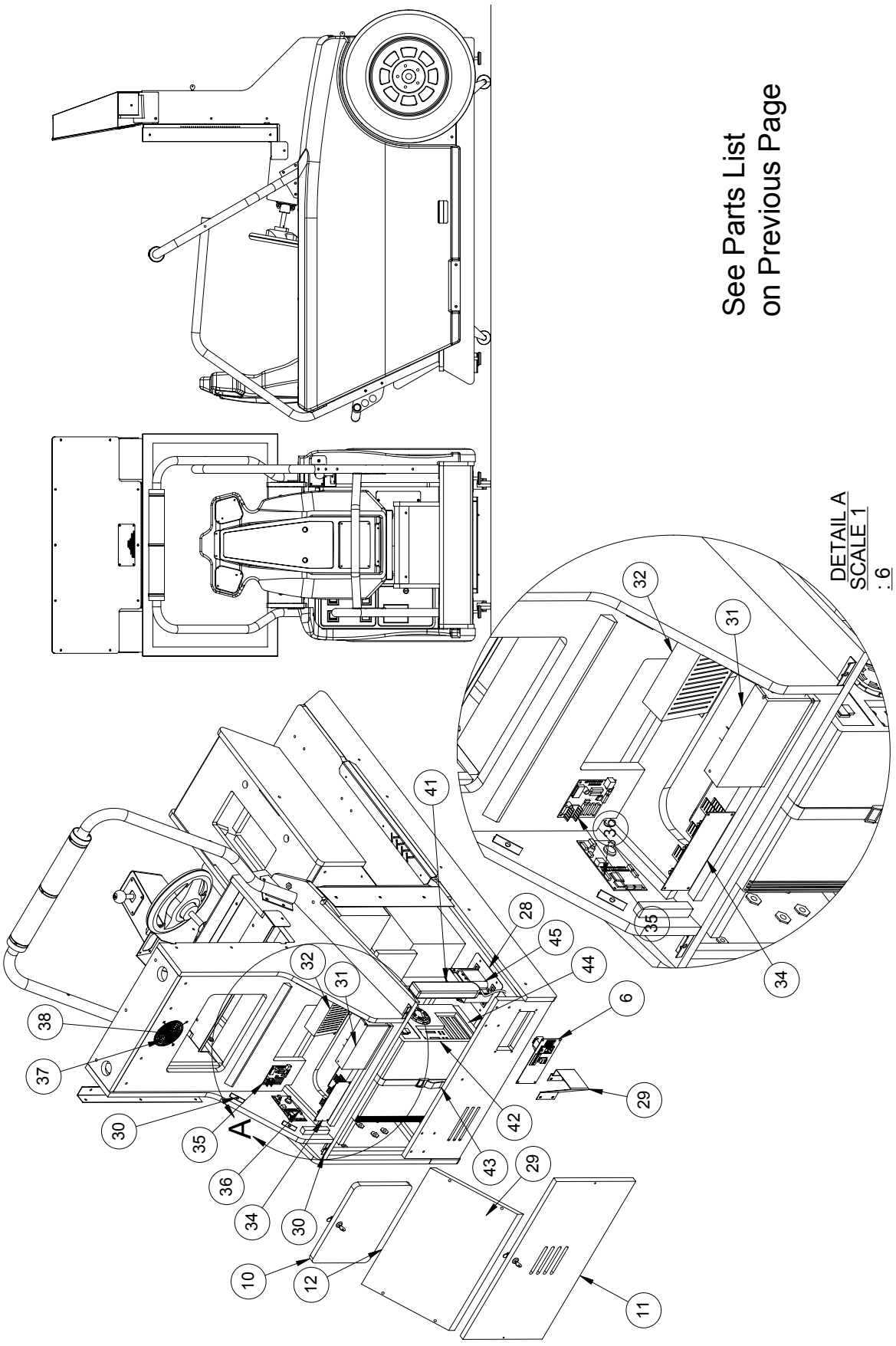
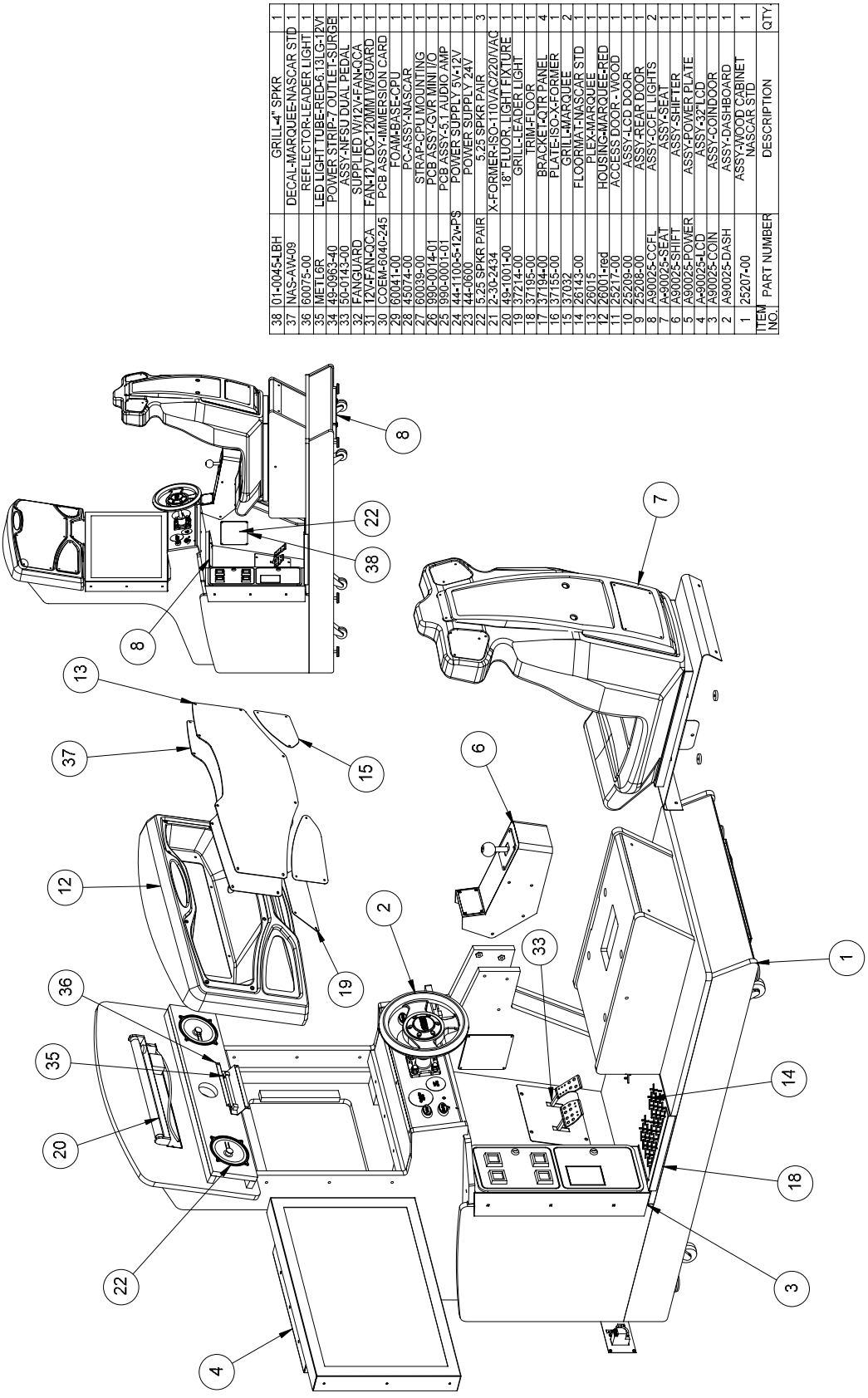


Figure 43. Main Assembly Drawing (Deluxe), Page 2 of 2



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
38	01-0045-LBH	GRILL-4" SPKR	1
37	NAS-AW-09	DECAL-MARQUEE-NASCAR STD	1
36	60075-00	REFLECTOR-LEADER LIGHT	1
35	METL6R	LED LIGHT TUBE-RED-6.13LG-12V	1
34	49-0963-40	POWER STRIP-7 OUTLET-SURGE	1
33	50-0143-00	ASSY-NFSU DUAL PEDAL	1
32	FANGUARD	SUPPLIED W/12V-FAN-QCA	1
31	12V-FAN-QCA	FAN-12V DC-120MM W/GUARD	1
30	COEM-6040-245	PCB ASSY-IMMERSION CARD	1
29	60041-00	FOAM-BASE-CPU	1
28	45074-00	PC-ASSY-NASCAR	1
27	60039-00	STRAP-CPU MOUNTING	1
26	990-0014-01	PCB ASSY-GVR MINI I/O	1
25	990-0001-01	PCB ASSY-5.1 AUDIO AMP	1
24	44-1100-5-12V-PS	POWER SUPPLY 5V-12V	1
23	44-0600	POWER SUPPLY 24V	1
22	5.25 SPKR PAIR	5.25 SPKR PAIR	3
21	2-30-2434	X-FORMER-ISO-110VAC/220VAC	1
20	49-1001-00	18" FLUOR. LIGHT FIXTURE	1
19	37214-00	GRILL-LEADER LIGHT	1
18	37195-00	TRIM-FLOOR	1
17	37194-00	BRACKET-QTR PANEL	4
16	37155-00	PLATE-ISO-X-FORMER	1
15	37032	GRILL-MARQUEE	2
14	26143-00	FLOORMAT-NASCAR STD	1
13	26015	PLEX-MARQUEE	1
12	26001-red	HOUSING-MARQUEE-RED	1
11	25217-00	ACCESS DOOR - WOOD	1
10	25209-00	ASSY-LCD DOOR	1
9	25208-00	ASSY-REAR DOOR	1
8	A90025-CCFL	ASSY-CCFL LIGHTS	2
7	A-90025-SEAT	ASSY-SEAT	1
6	A90025-SHIFT	ASSY-SHIFTER	1
5	A90025-POWER	ASSY-POWER PLATE	1
4	A-90025-LCD	ASSY-32" LCD	1
3	A90025-COIN	ASSY-COINDOOR	1
2	A90025-DASH	ASSY-DASHBOARD	1
1	25207-00	ASSY-WOOD CABINET NASCAR STD	1

Figure 44. Main Assembly Drawing (Standard), Page 1 of 2

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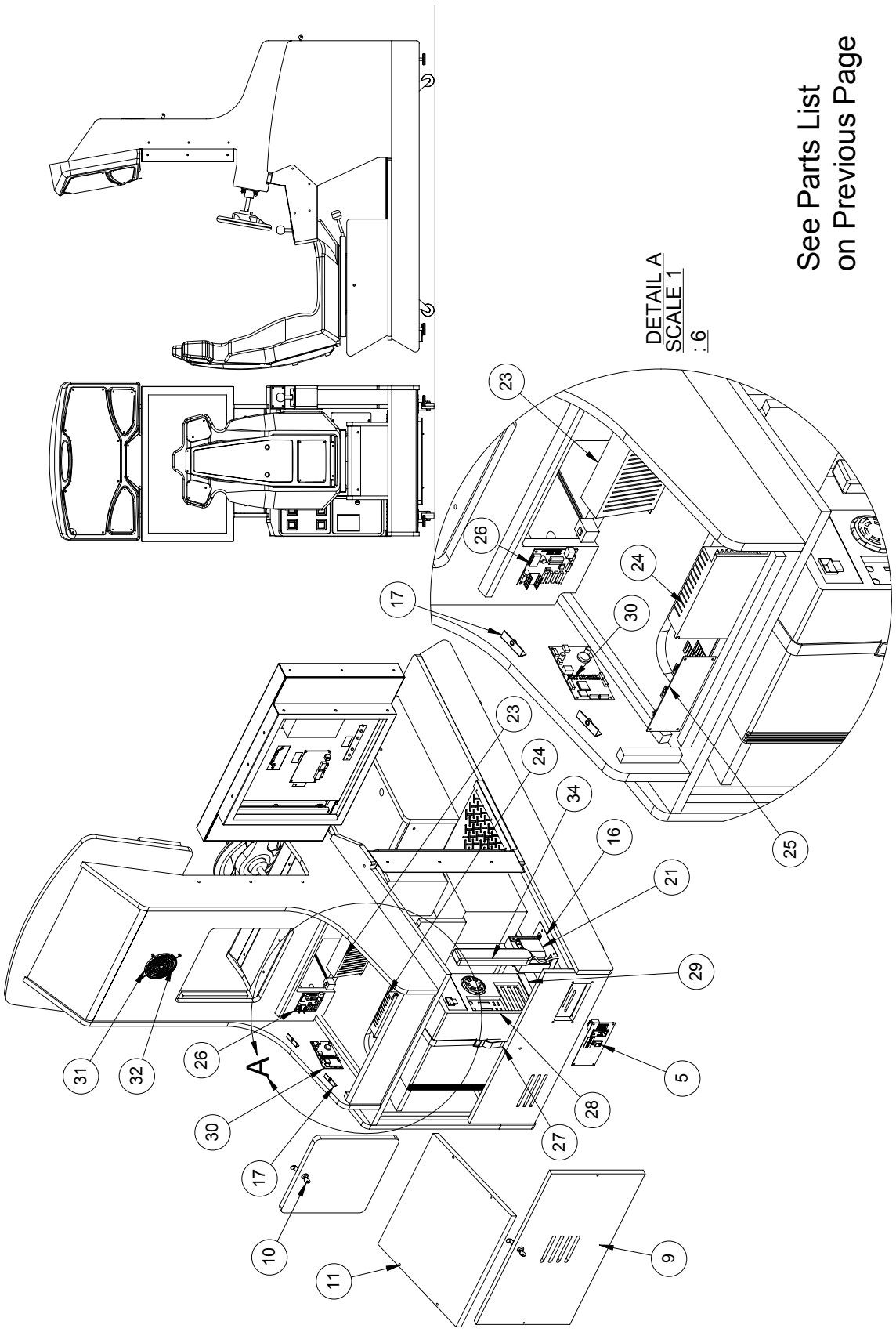

Figure 45. Main Assembly Drawing (Standard), Page 2 of 2

Warranty Service

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LIMITED WARRANTY

GLOBAL VR® warrants that its computer circuit boards, hard drives, power supplies, monitors, displays, controls, sensors, and mechanical structures are free from defects in materials and workmanship under normal use and service for a period of ninety (90) days from the date of sale. The warranty period for LCD panels and Immersion® Force-Feedback PCBs is one (1) year from the date of sale.

All software and accompanying documentation furnished with, or as part of the Product, is supplied "AS IS" with no warranty of any kind except where expressly provided otherwise in any documentation or license agreement furnished with the Product.

During the warranty period, GLOBAL VR® will, at no charge, repair the Product, provided:

- Purchaser believes that the Product is defective in material or workmanship and promptly notifies GLOBAL VR® in writing with an explanation of the claim;
- All claims for warranty service are made within the warranty period;
- Products are returned adequately packed and freight prepaid to GLOBAL VR®'s designated service center;
- GLOBAL VR®'s inspection or test of the Product verifies to GLOBAL VR®'s satisfaction that the alleged defect(s) existed and were not caused by accident, misuse, neglect, unauthorized or attempted repair or testing, unauthorized modification, incorrect installation, vandalism, failure to follow the maintenance schedule or procedures; or operation in out-of-specification environmental conditions.

GLOBAL VR® will return the repaired Product freight prepaid to the Purchaser. All freight costs associated with replacement of warranty parts after expiration of the original warranty period are the responsibility of the Purchaser. GLOBAL VR® is not obligated to provide the Purchaser with a substitute unit or on-site service during the warranty period or at any time. If after investigation GLOBAL VR® determines that the reported problem was not covered by the warranty, Purchaser shall pay GLOBAL VR® for the cost of investigating the problem at its then prevailing per incident billing rate. No repair or replacement of any Product or part therein shall extend the warranty period as to the entire Product. The warranty on the repaired part only shall be in effect for a period of ninety (90) days following the repair or replacement of that part or the remaining period of the Product parts warranty, whichever is greater.

Purchaser's exclusive remedy and GLOBAL VR®'s sole obligation is to supply or pay for all labor necessary to repair any Product found to be defective within the warranty period and to supply, at no extra charge, new or rebuilt replacements for defective parts. If repair or replacement fails to remedy the defect, then, and only in such event, shall GLOBAL VR® refund to Purchaser the purchase price for said Product. Purchaser's failure to make a claim as provided above or continued use of the Product shall constitute an unqualified acceptance of said Product and a waiver by Purchaser of all claims thereto.

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Phone: 408.597.3435
Fax: 408.597.3437
E-mail: techsupport@globalvr.com
Website: http://service.globalvr.com
Extended Service Hours: Monday–Friday 5pm—Midnight
Saturday & Sunday 7:00am—Midnight Pacific Time

Free telephone, e-mail, and online support are provided for systems during the warranty period. GLOBAL VR® Technical Support can help you troubleshoot problems and diagnose defective parts. We can also answer questions about the operation of your game.

When you contact Technical Support, please provide the information listed below to assist the Technical Support representative in solving your problem quickly. For your convenience, space is provided to write important numbers.

- Cabinet Serial Number: _____
- Game Version (from Operator Menu): _____
- OS Version (from Operator Menu): _____
- Dongle Version (from Operator Menu): _____
- IO Board Version (From Operator Menu): _____
- Your mailing address and telephone number.
- A summary of the question or a detailed description of the problem with your cabinet.

The additional information listed below, as applicable, may assist Technical Support in solving your problem quickly.

- Specific error message
- Any changes made to the system
- Date of latest install or upgrade
- For game-play issues, the game mode and number of players

To comment on this manual, please e-mail: techpubs@globalvr.com